

STREET: 530 Fifth Avenue
CITY: New York
STATE: New York
COUNTRY: U.S.
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/714,741
FILING DATE: 16-SEP-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer Esq., William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2460
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 42:
SEQUENCE CHARACTERISTICS:
LENGTH: 588 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: amino acid
US-08-714-741-42

Query Match 22.5%; Score 108; DB 4; Length 588;
Best Local Similarity 29.9%; Pred. No. 0.014;
Matches 32; Conservative 22; Mismatches 33; Indels 20; Gaps 3;

QY 4 YESTQEQIEELKDYNEQISEG--ETLILAIQ-----NKISLDKIA 44
DB 483 YE-VORLLKELKEDSESDYLKGLRPLQSLDTKAKLSKLELSDKIDSLDAEIA 541
QY 45 EAEKKLADSQNGEGVEDYWTSGDEKLEKLAQAEQDELQAEQLDLDE 91
DB 542 KLEVQLKDAEGNNVEAFKEGLEKTTAEKKALEKAEADLKKAUDE 588

RESULT 14
US-09-949-016-6468
Sequence 6468, Application US/09949016
Patent No. 6812339
GENERAL INFORMATION:
APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
FILE REFERENCE: CL001307
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR FILING DATE: 2000-10-20
PRIOR APPLICATION NUMBER: 60/237,768
PRIOR FILING DATE: 2000-10-03
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR FILING DATE: 2000-09-08
NUMBER OF SEQ ID NOS: 207012
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 6468
LENGTH: 1979
TYPE: PRT
ORGANISM: Human
US-09-949-016-6468

Query Match 22.3%; Score 107; DB 4; Length 1979;
Best Local Similarity 25.6%; Pred. No. 0.085;
Matches 31; Conservative 19; Mismatches 29; Indels 42; Gaps 3;

QY 1 QALYESTQEQIEELKDYNEQISEGETL-----ILAIQ----- 33

DB 245 QKLTETSRHREELSDYEERIEELENLLQGGSGVIETDLSKIYEMQKTIQVLQIEKVES 304
QY 34 -NKISLDLDDKIAEAEKKLADSQNGEGVEDYWTSGDEKLEKLAQAEQDELQAEQLDLDE 92
DB 305 TKKMEQLEDKIKDINKKLSAENDRDI-----LRREQSQLNVEKKQIMBEC 350
QY 93 D 93
DB 351 E 351

RESULT 15

US-09-949-016-7404
Sequence 7404, Application US/09949016
Patent No. 6812339
GENERAL INFORMATION:
APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
FILE REFERENCE: CL001307
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR FILING DATE: 2000-10-20
PRIOR APPLICATION NUMBER: 60/237,768
PRIOR FILING DATE: 2000-10-03
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR FILING DATE: 2000-09-08
NUMBER OF SEQ ID NOS: 207012
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 7404
LENGTH: 2047
TYPE: PRT
ORGANISM: Human
US-09-949-016-7404

Query Match 22.3%; Score 107; DB 4; Length 2047;
Best Local Similarity 25.6%; Pred. No. 0.089;
Matches 31; Conservative 19; Mismatches 29; Indels 42; Gaps 3;

QY 1 QALYESTQEQIEELKDYNEQISEGETL-----ILAIQ----- 33
DB 313 QKLTETSRHREELSDYEERIEELENLLQGGSGVIETDLSKIYEMQKTIQVLQIEKVES 372
QY 34 -NKISLDLDDKIAEAEKKLADSQNGEGVEDYWTSGDEKLEKLAQAEQDELQAEQLDLDE 92
DB 373 TKKMEQLEDKIKDINKKLSAENDRDI-----LRREQSQLNVEKKQIMBEC 418
QY 93 D 93
DB 419 E 419

Search completed: November 17, 2005, 19:32:24
Job time : 18.6081 secs

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; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match 22.7%; Score 109; DB 2; Length 108;
Best Local Similarity 30.1%; Pred. No. 0.0013;
Matches 28; Conservative 26; Mismatches 29; Indels 10; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGE-ETLILAIQNKISDLDDKIAEAEKKLADSONGEGVEDYWTS 65
Db 21 TQDELD-----KEAAEALNKKVEALPNQVSEELSKLELDNLKDAET-NNVEDYIKE 73

Qy 66 GDEKLEKLQAEQDELQAEQLDQLDEV--DGQE 96
Db 74 GLEEAIAATKQAELEKTPKELDAALNELGPDGDE 106

RESULT 11
US-09-147-875A-23
; Sequence 23, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent in Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-23

Query Match 22.7%; Score 109; DB 4; Length 108;
Best Local Similarity 30.1%; Pred. No. 0.0013;
Matches 28; Conservative 26; Mismatches 29; Indels 10; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGE-ETLILAIQNKISDLDDKIAEAEKKLADSONGEGVEDYWTS 65
Db 21 TQDELD-----KEAAEALNKKVEALPNQVSEELSKLELDNLKDAET-NNVEDYIKE 73

Qy 66 GDEKLEKLQAEQDELQAEQLDQLDEV--DGQE 96
Db 74 GLEEAIAATKQAELEKTPKELDAALNELGPDGDE 106

RESULT 12
US-08-529-055-67
; Sequence 67, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.

```

```

; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 67:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 211 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-67

Query Match 22.7%; Score 109; DB 4; Length 211;
Best Local Similarity 30.1%; Pred. No. 0.0031;
Matches 28; Conservative 26; Mismatches 29; Indels 10; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGE-ETLILAIQNKISDLDDKIAEAEKKLADSONGEGVEDYWTS 65
Db 45 TQDELD-----KEAAEALNKKVEALPNQVSEELSKLELDNLKDAET-NNVEDYIKE 97

Qy 66 GDEKLEKLQAEQDELQAEQLDQLDEV--DGQE 96
Db 98 GLEEAIAATKQAELEKTPKELDAALNELGPDGDE 130

RESULT 13
US-08-714-741-42
; Sequence 42, Application US/08714741
; Patent No. 6500613
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS THEREOF,
; TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM, AND USES OF SUCH GENES,
; TITLE OF INVENTION: PORTIONS AND PRODUCTS
; NUMBER OF SEQUENCES: 47
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.

```

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Query Match      24.0%; Score 115; DB 4; Length 8991;
Best Local Similarity 29.5%; Pred. No. 0.095;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGETLILAIQNKISDLDKIAEAEKKLADSQNGEGVEDYWT 63
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 8635 TQDELKKAEEAEAEKKEVE-----ALQNVAELEELSKLEDNLKDAET-NNVEDYI 8685
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Qy 64 TSGDEKLEKLAQDEQLQAEQLDQLLDEV--DGOE 96
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 8686 KGLEEATATKKALEKTKQKELDAALNELGPDGDE 8720
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :

RESULT 8
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Brilles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; FILING DATE: 20-SEP-1996
; APPLICATION NUMBER: US/08/710,749
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22

Query Match      22.7%; Score 109; DB 2; Length 108;
Best Local Similarity 30.1%; Pred. No. 0.0013;
Matches 28; Conservative 26; Mismatches 29; Indels 10; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGETLILAIQNKISDLDKIAEAEKKLADSQNGEGVEDYWT 65
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 21 TQDELD-----KEAAEALNKKVEALPNQVSELEELSLEDNLKDAETNH-VEDYIKE 73
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Qy 66 GDEKLEKLAQDEQLQAEQLDQLLDEV--DGOE 96
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 74 GLEEAATKQAELEKTPKELDAALNELGPDGDE 106
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :

RESULT 9
US-08-710-749-23
; Sequence 23, Application US/08710749
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; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Brilles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-23

Query Match      22.7%; Score 109; DB 2; Length 108;
Best Local Similarity 30.1%; Pred. No. 0.0013;
Matches 28; Conservative 26; Mismatches 29; Indels 10; Gaps 4;

Qy 7 TQEQIEELKDYNEQISEGETLILAIQNKISDLDKIAEAEKKLADSQNGEGVEDYWT 65
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 21 TQDELD-----KEAAEALNKKVEALPNQVSELEELSLEDNLKDAETNH-VEDYIKE 73
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Qy 66 GDEKLEKLAQDEQLQAEQLDQLLDEV--DGOE 96
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 74 GLEEAATKQAELEKTPKELDAALNELGPDGDE 106
    : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :

RESULT 10
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Brilles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
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; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 70:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 232 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-70

Query Match 24.0%; Score 115; DB 4; Length 232;
Best Local Similarity 29.5%; Pred. No. 0.0009;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNQIESEGETLILAIQNKISDLDDKIAEKKLADSONGSGVBDYW 63
DB 71 TQDELKKAEEAEELNEKVE-----ALQNVAELEELSLELDNLDKDAET-NNVEDYI 121
QY 64 TSGDEKLEKLAQEDELQAEQLDQLLDEV--DGOE 96
DB 122 KEGLEEAITATKAELEKTQKELDAALNELGPDGE 156

RESULT 6
US-08-529-055-73
; Sequence 73, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 458 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-73

; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 458 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-73

Query Match 24.0%; Score 115; DB 4; Length 458;
Best Local Similarity 29.5%; Pred. No. 0.0021;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNQIESEGETLILAIQNKISDLDDKIAEKKLADSONGSGVEDYW 63
DB 296 TQDELKKAEEAEELNEKVE-----ALQNVAELEELSLELDNLDKDAET-NNVEDYI 346
QY 64 TSGDEKLEKLAQEDELQAEQLDQLLDEV--DGOE 96
DB 347 KEGLEEAITATKAELEKTQKELDAALNELGPDGE 381

RESULT 7
US-08-714-741-32
; Sequence 32, Application US/08714741
; Patent No. 6500613
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS THEREOF,
; TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM, AND USES OF SUCH GENES
; TITLE OF INVENTION: PORTIONS AND PRODUCTS
; NUMBER OF SEQUENCES: 47
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: U.S.
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/714,741
; FILING DATE: 16-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-714-741-32

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, APPLICATION NUMBER: US/08/710,749
,
, FILING DATE: 20-SEP-1996
,
, CLASSIFICATION: 435
,
, ATTORNEY/AGENT INFORMATION:
, NAME: Frommer, William S.
, REGISTRATION NUMBER: 25,506
, REFERENCE/DOCKET NUMBER: 454312-2074
,
, TELECOMMUNICATION INFORMATION:
, TELEPHONE: (212) 840-3333
, TELEFAX: (212) 840-0712
,
, INFORMATION FOR SEQ ID NO: 24:
, SEQUENCE CHARACTERISTICS:
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RESULT 5
US-08-529-055-70
; Sequence 70, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Thereof, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036

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OM protein - protein search, using sw model

Run on: November 17, 2005, 18:59:20 ; Search time 18.4831 Seconds
(without alignments)
387.723 Million cell updates/sec

Title: US-10-674-755-28
Perfect score: 480
Sequence: 1 QALYESTOEIIEELKDYNEQ.....EQDELQAEILDQLLDEVDCQE 96

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued Patents AA:*
1: /cgn2_6/ptodata/1/1aa/5A_COMB.pep.*
2: /cgn2_6/ptodata/1/1aa/5B_COMB.pep.*
3: /cgn2_6/ptodata/1/1aa/6A_COMB.pep.*
4: /cgn2_6/ptodata/1/1aa/6B_COMB.pep.*
5: /cgn2_6/ptodata/1/1aa/PCTUS_COMB.pep.*
6: /cgn2_6/ptodata/1/1aa/backfiles1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	480	100.0	96	2	US-08-710-749-28
2	480	100.0	96	4	US-09-147-875A-28
3	115	24.0	108	2	US-08-710-749-24
4	115	24.0	108	4	US-09-147-875A-25
5	115	24.0	232	4	US-08-529-055-70
6	115	24.0	458	4	US-08-529-055-73
7	115	24.0	8991	4	US-08-714-741-32
8	109	22.7	108	2	US-08-710-749-22
9	109	22.7	108	2	US-08-710-749-23
10	109	22.7	108	2	US-08-710-749-26
11	109	22.7	108	4	US-09-147-875A-23
12	109	22.7	211	4	US-08-529-055-67
13	108	22.5	588	4	US-08-714-741-42
14	107	22.3	1979	4	US-09-949-016-6468
15	107	22.3	2047	4	US-09-949-016-7404
16	106	22.1	108	4	US-09-147-875A-24
17	106	22.1	212	4	US-08-529-055-68
18	105	21.9	101	2	US-08-710-749-1
19	105	21.9	1162	2	US-08-728-323A-2
20	105	21.9	1162	3	US-09-298-568-2
21	105	21.9	1162	4	US-09-410-399-2
22	105	21.9	1162	4	US-09-894-273-2
23	104.5	21.8	1231	4	US-08-714-741-41
24	103.5	21.6	99	4	US-09-147-875A-16
25	103	21.5	141	4	US-09-286-981B-2
26	103	21.5	550	4	US-09-583-110-4871
27	103	21.5	550	4	US-09-107-433-3858

ALIGNMENTS

RESULT 1

US-08-710-749-28
; Sequence 28, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/POCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 28:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 96 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; MOLECULE TYPE: amino acid
US-08-710-749-28

Query Match 100.0%; Score 480; DB 2; Length 96;
Best Local Similarity 100.0%; Pred. No. 3.2e-40;
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 QALYESTOEIIEELKDYNEQISEGETIILAIQNKISLDLDDKIAEAEKKLADSQNGEGVE 60
Db 1 QALYESTOEIIEELKDYNEQISEGETIILAIQNKISLDLDDKIAEAEKKLADSQNGEGVE 60

Search completed: November 17, 2005, 20:37:56
Job time : 58.9055 secs

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FT NON_TER 256 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match      23.0%; Score 110.5; DB 2; Length 256;
Best Local Similarity 33.3%; Pred. No. 5.8;
Matches 35; Conservative 20; Mismatches 27; Indels 23; Gaps 6;

QY 7 TOEQIEELKDYNEQISEGETLILAIQNKISLDKIAEAEKKL-----ADSQNGE--GVE 60
   |||:::|
   |||:::|
   |||:::|
Db 72 TQDELDK-----EAAEDANIEALQNKVADLENKVAELDKVETRLQSLDKAEENVE 123
   |||:::|
   |||:::|
   |||:::|
QY 61 DYTWSGDE----DK---LEKLAQDEQLQAEQLDQLLDEV--DQGE 96
   |||:::|
   |||:::|
   |||:::|
Db 124 DYVKEGLEKALTKKVELNNTQKALDTAQKALDTALNELGPDGDE 168

RESULT 13
Q8BG00
ID Q6BG00 PRELIMINARY; PRT; 2301 AA.
AC Q6BG00;
DT 25-OCT-2004 (TremBLrel. 28, Created)
DT 25-OCT-2004 (TremBLrel. 28, Last sequence update)
DT 25-OCT-2004 (TremBLrel. 28, Last annotation update)
DE Hypothetical protein.
GN ORFNames=PTMB.222;
OS Paramaecium tetraurelia.
OC Eukaryota; Alveolata; Ciliophora; Oligohymenophorea; Peniculida;
OC Paramaecium.
OX NCBI_TaxID=5888;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=Stock d4-2;
RA PubMed=15296759; DOI=10.1016/j.cub.2004.07.029;
RA Zagulski M., Nowak J.K., Le Mouel A., Nowacki M., Migdalski A.,
RA Gromadka R., Noel B.B., Blanc I., Deesen P., Wincker P., Keller A.M.,
RA Cohen J., Meyer E., Sperling L.;
RT "High Coding Density on the Largest Paramaecium tetraurelia Somatic
RT Chromosome.";
RL Curr. Biol. 14:1397-1404(2004).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=Stock d4-2;
RA Nowak J.K., Migdalski A., Gromadka R., Zagulski M.;
RT "Paramcium megabase sequencing project.";
RL Submitted (JUL-2004) to the EMBL/GenBank/DBJ databases.
DR EMBL; CRS48612; CAH03420.1; -.
KW Hypothetical protein.
SQ SEQUENCE 2301 AA; 270852 MW; 41D1B81BFD30F2DF CRC64;

Query Match      22.9%; Score 110; DB 2; Length 2301;
Best Local Similarity 29.2%; Pred. No. 55;
Matches 31; Conservative 21; Mismatches 38; Indels 16; Gaps 2;

QY 7 TOEQIEELKDYNEQISEGETLILAIQNKISLDKIAEAEKKLADSON-GEQVYDWTYS 65
   |||:::|
   |||:::|
   |||:::|
Db 936 TQENINEKQIQEDITERKNEENNEENQIGTSNQLDNLQSDKELAEQINVKDSSQISKQ 995
   |||:::|
   |||:::|
   |||:::|
QY 66 GDEQLEKLO-----AEQDELQAEQLDQLLDEVQGE 96
   |||:::|
   |||:::|
   |||:::|
Db 996 GDEQNKIQENFETEQLOMKGRKEQEQEVQNEQIESDVRGQE 1041

RESULT 14
Q8IL42
ID Q8IL42 PRELIMINARY; PRT; 3384 AA.
AC Q8IL42;
DT 01-MAR-2003 (TremBLrel. 23, Created)
DT 01-MAR-2003 (TremBLrel. 23, Last sequence update)
DT 01-JUN-2003 (TremBLrel. 24, Last annotation update)
DE Hypothetical protein.
GN ORFNames=PF14_0407;
OS Plasmodium falciparum (isolate 3D7).
OC Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
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OX NCBI_TaxID=36329;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=2255705; PubMed=1236864; DOI=10.1038/nature01097;
RA Gardner M.J., Hall N., Fung E., White O., Berriman M., Hyman R.W.,
RA Carlton J.M., Pain A., Nelson K.E., Bowman S., Paulsen I.T., James K.,
RA Eisen J.A., Rutherford K., Salzberg S.L., Craig A., Kyes S.,
RA Chan M.S., Nene V., Shallow S.J., Suh B., Peterson J., Angiuoli S.,
RA Perteira M., Allen J., Selengut J., Haft D., Mather M.W., Vaidya A.B.,
RA Martin D.M., Fairlamb A.H., Fraunholz M.J., Roos D.S., Ralph S.A.,
RA McFadden G.I., Cummings L.M., Subramanian G.M., Mungall C.,
RA Venter J.C., Carucci D.J., Hoffman S.L., Newbold C., Davis R.W.,
RA Fraser C.M., Barrell B.;
RT "Genome sequence of the human malaria parasite Plasmodium
RT falciparum.";
RL Nature 419:498-511(2002).
DR EMBL; AE014822; AAN37020.1; -.
DR HSSP; P47102; IRE0.
DR InterPro; IPR000904; Sec7.
DR Pfam; PF01369; Sec7; 1.
DR SMART; SM00222; Sec7; 2.
DR PROSITE; PS50190; SEC7; 1.
KW Hypothetical protein.
SQ SEQUENCE 3384 AA; 404580 MW; 340A187BCAEBAG6FD CRC64;

Query Match      22.7%; Score 109; DB 2; Length 3384;
Best Local Similarity 30.3%; Pred. No. 94;
Matches 30; Conservative 18; Mismatches 43; Indels 8; Gaps 1;

QY 5 ESTQEQIEELKDYNEQISEGETLILAIQNKISD-----LDDKIAEAEKKLADSONG 56
   |||:::|
   |||:::|
   |||:::|
Db 3284 DSTQEKEDNIKDSTQDIEDNVEDLIEEKQNNIKDSTQEKEDNIKDSTQEKEDNIKDSTQEK 3343
   |||:::|
   |||:::|
   |||:::|
QY 57 EGVEDYWTSGDEDEKLEKLAQAEQDELQAEQLDQLLDEVQGE 95
   |||:::|
   |||:::|
   |||:::|
Db 3344 NKDDNANISNDDEEHEKTQELKEGKEDDAHSSDEKQK 3382

RESULT 15
Q7R219
ID Q7R219 PRELIMINARY; PRT; 1024 AA.
AC Q7R219;
DT 01-MAR-2004 (TremBLrel. 26, Created)
DT 01-MAR-2004 (TremBLrel. 26, Last sequence update)
DT 01-MAR-2004 (TremBLrel. 26, Last annotation update)
DE GLP 630 79370.82444.
OS Giardia_lambia ATCC 50803.
OC Eukaryota; Diplomonadida; Hexamitidae; Giardia.
OX NCBI_TaxID=184922;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=WB C6;
RA Morrison H.G., McArthur A.G., Adam R.D., Alley S.B., Gillin F.D.,
RA Olsen G.J., Sogin M.L.;
RT "Draft sequence of the Giardia lamblia genome.";
RL Submitted (MAR-2003) to the EMBL/GenBank/DBJ databases.
CC -!- CAUTION: The sequence shown here is derived from an
CC EMBL/GenBank/DBJ whole genome shotgun (WGS) entry which is
CC Preliminary data.
DR EMBL; AAC01000023; EAA41405.1; -.
DR InterPro; IPR002110; ANK.
DR Pfam; PF00023; Ank; 9.
DR PRINTS; PR01415; ANKYRIN.
DR PROSITE; PS50088; ANK_REPEAT; 3.
DR PROSITE; PS50297; ANK_REPEAT_REGION; 2.
KW ANK repeat.
SQ SEQUENCE 1024 AA; 112846 MW; 7BC6A1926E55BA5F CRC64;

Query Match      22.5%; Score 108; DB 2; Length 1024;
Best Local Similarity 32.2%; Pred. No. 34;
Matches 29; Conservative 25; Mismatches 26; Indels 10; Gaps 4;

QY 6 STQEQIEELKDYNEQISEGETLILAIQNKISLDKIAEAEKKLAD--SONGE--GVED 61
```

OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;

OC Streptococcus.

OX NCBI_TaxID=1313;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=SP95;

RX MEDLINE=22241996; PubMed=12354862;

RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,

RA Lorino G., Recchia S., Pantosti A., Beall B.;

RT "Genotypes of invasive pneumococcal isolates recently recovered from

RT Italian patients.";

RL J. Clin. Microbiol. 40:3660-3665 (2002).

DR EMBL; AF490265; AAN37733.1; -.

FT NON_TER 1

FT NON_TER 211

SQ SEQUENCE 211 AA; 23207 MW; 0968FBFBEB08CD6483 CRC64;

Query Match 23.1%; Score 111; DB 2; Length 211;

Best Local Similarity 33.3%; Pred. No. 4.4;

Matches 40; Conservative 20; Mismatches 36; Indels 24; Gaps 7;

Qy 1 QALYESTQEQIEL-----KDYNEQISE-GEETHILATONKISDLDKIAEAKKL- 50

Db 2 KAELEKAEAELENLSTLDPEGKTQDELDKAAEDVNIEALQNKVADLENKVAELDKVET 61

Qy 51 ---ADSQNGE--GVEDYWTSGDE---DK---LEKLAQEQDELQALDQLLDE--DGOE 96

Db 62 RLQSLDKDAEENNVEDYKVEGLEKALTDKKVELNNTQKALDTAKQALDTALNELGPDGDE 121

RESULT 10

Q9L594

ID Q9L594 PRELIMINARY; PRT; 257 AA.

AC Q9L594;

DT 01-OCT-2000 (TrEMBLrel. 15, Created)

DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)

DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)

DE PspA (Fragment).

GN Name=pspA;

OS Streptococcus pneumoniae.

OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;

OC Streptococcus.

OX NCBI_TaxID=1313;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=SP222;

RX MEDLINE=20472698; PubMed=11015380;

RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;

RT "Pneumococcal pspA sequence types of prevalent multiresistant

RT pneumococcal strains in the United States and of internationally

RT disseminated clones.";

RL J. Clin. Microbiol. 38:3663-3669 (2000).

RN [2]

RP SEQUENCE FROM N.A.

RC STRAIN=SP222;

RA Beall B.W.;

RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF254255; AAF68090.1; -.

FT NON_TER 1

FT NON_TER 257

SQ SEQUENCE 257 AA; 28241 MW; 8470B68C949A133D CRC64;

Query Match

Best Local Similarity 23.1%; Score 111; DB 2; Length 257;

Matches 40; Conservative 20; Mismatches 36; Indels 24; Gaps 7;

Qy 1 QALYESTQEQIEL-----KDYNEQISE-GEETHILATONKISDLDKIAEAKKL- 50

Db 48 KAELEKAEAELENLSTLDPEGKTQDELDKAAEDVNIEALQNKVADLENKVAELDKVET 107

Qy 51 ---ADSQNGE--GVEDYWTSGDE---DK---LEKLAQEQDELQALDQLLDE--DGOE 96

Db 108 RLQSLDKDAEENNVEDYKVEGLEKALTDKKVELNNTQKALDTAKQALDTALNELGPDGDE 167

RESULT 11,

Q8GNS8

ID Q8GNS8 PRELIMINARY; PRT; 224 AA.

AC Q8GNS8;

DT 01-MAR-2003 (TrEMBLrel. 23, Created)

DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)

DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)

DE PspA (Fragment).

GN Name=pspA;

OS Streptococcus pneumoniae.

OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;

OC Streptococcus.

OX NCBI_TaxID=1313;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=PN124;

RX MEDLINE=22241996; PubMed=12354862;

RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,

RA Lorino G., Recchia S., Pantosti A., Beall B.;

RT "Genotypes of invasive pneumococcal isolates recently recovered from

RT Italian patients.";

RL J. Clin. Microbiol. 40:3660-3665 (2002).

DR EMBL; AF490267; AAN37735.1; -.

DR HSSP; P00192; IAPC.

DR InterPro; IPR009082; His_kin_homodim.

FT NON_TER 1

FT NON_TER 224

SQ SEQUENCE 224 AA; 23418 MW; 48674E27AFB66A95 CRC64;

Query Match

Best Local Similarity 23.0%; Score 110.5; DB 2; Length 224;

Matches 29; Conservative 21; Mismatches 30; Indels 19; Gaps 2;

Qy 12 BELKDYNEQISEG-----BETLILAIQ---NKISDLDKIAEAKKLAD 52

Db 15 QDLKDINESDEYVKEGFRAPLQSELDTKAKLLKLEELSGKTEELDAEIALEVLQKD 74

Qy 53 SONGEGVEDYWTSGDEKLEKLAQEQDELQALDQLLDE 91

Db 75 AEGNNVVEAYFKEGLEKTAETAEKAELEKAEADLKKAVIDE 113

RESULT 12

Q9L595

ID Q9L595 PRELIMINARY; PRT; 256 AA.

AC Q9L595;

DT 01-OCT-2000 (TrEMBLrel. 15, Created)

DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)

DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)

DE PspA (Fragment).

GN Name=pspA;

OS Streptococcus pneumoniae.

OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;

OC Streptococcus.

OX NCBI_TaxID=1313;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=SP220;

RX MEDLINE=20472698; PubMed=11015380;

RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;

RT "Pneumococcal pspA sequence types of prevalent multiresistant

RT pneumococcal strains in the United States and of internationally

RT disseminated clones.";

RL J. Clin. Microbiol. 38:3663-3669 (2000).

RN [2]

RP SEQUENCE FROM N.A.

RC STRAIN=SP220;

RA Beall B.W.;

RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF254254; AAF68089.1; -.

FT NON_TER 1

FT NON_TER 256

Matches 30; Conservative 30; Mismatches 35; Indels 15; Gaps 4;

QY 1 QALYESTQEIIEEL-----KDYNEQISEGE-ETLILAIQNKISLDLDDKIAEAEK 48
DB 49 KAELEKAEAELENLLSTLDPEGKTQDELDEKAAEAELENKKVQALQNVAELEEEELSKLED 108
QY 49 KLADSONGEGVEDYWTSGDEDKLEKLQAEQDELQAELOQLLDEV--DGOE 96
DB 109 NLKDAETNNVVEDYIKKGLAEAIATKQAELEKTQKELDAALNELGPDGDE 157

RESULT 6

Q8QK2
ID Q8QK2 PRELIMINARY; PRT; 426 AA.
AC Q8QK2
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=DL5;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/JAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071810; AAF27706.1; -.
DR HSP; F00192; IM67.
DR InterPro; IPR011047; Quin_ald_DH_like.
DR InterPro; IPR005333; Tropomyosin.
DR PRINTS; PR00194; TROPOMYOSIN.
FT NON_TER 426
SQ SEQUENCE 426 AA; 46534 MW; 81AA11348CBE6634 CRC64;

Query Match 23.9%; Score 114.5; DB 2; Length 426;
Best Local Similarity 29.8%; Pred. No. 5.2;
Matches 34; Conservative 21; Mismatches 36; Indels 23; Gaps 3;

QY 1 QALYESTQEI-----EELKDYNEQISEG--ETLILAIQNKISLDLDDKIAEAEK 48
DB 198 QAKIAELENVHRLSEDLKDNESDEYVKEGLRPLQSELDYTKAKLLKLEELSGKIE 257
QY 38 DLDKIAEAEKKLADSONGEGVEDYWTSGDEDKLEKLQAEQDELQAELOQLLDEV 91
DB 258 ELDAEIAELEVLQKDAEGNNVVEAFKSGLEKTTAEKAELEKAEADLKXAVDE 311

RESULT 7

Q8QK2
ID Q8QK2 PRELIMINARY; PRT; 107 AA.
AC Q8QK2
DT 01-OCT-2002 (TremBLrel. 22, Created)
DT 01-OCT-2002 (TremBLrel. 22, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE Pneumococcal surface protein A (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=255/00.
RX MEDLINE=22170754; PubMed=12183557;
RX DOI=10.1128/JAI.70.9.5086-5090.2002;
RA Miyaji E.N., Ferreira D.M., Lopes A.P.Y., Brandileone M.C.C.,

RA Dias W.O., Leite L.C.;
RT "Analysis of serum cross-reactivity and cross-protection elicited by
immunization with DNA vaccines against Streptococcus pneumoniae
expressing PspA fragments from different clades";
RL Infect. Immun. 70:5086-5090(2002).
DR EMBL; AY082390; AAL92495.1; -.
FT NON_TER 1
FT NON_TER 107
SQ SEQUENCE 107 AA; 11897 MW; 47913E25BE47D5CC CRC64;

Query Match 23.8%; Score 114; DB 2; Length 107;
Best Local Similarity 30.1%; Pred. No. 1.4;
Matches 28; Conservative 28; Mismatches 27; Indels 10; Gaps 4;

QY 7 TOEQIEELKDYNEQISEGE-ETLILAIQNKISLDLDDKIAEAEKKLADSONGEGVEDYWT 65
DB 21 TQDELDD-----KEAAEAELENKKVQALQNVAELEEEELSKLEDNLKDAETNNVEDYIKE 73
QY 66 GDEKLEKLQAEQDELQAELOQLLDEV--DGOE 96
DB 74 GLEEAATKAELEKTQKELDAALNELGPDGDE 106

RESULT 8

Q8GNS7
ID Q8GNS7 PRELIMINARY; PRT; 213 AA.
AC Q8GNS7
DT 01-MAR-2003 (TremBLrel. 23, Created)
DT 01-MAR-2003 (TremBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=128;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
RA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
Italian patients";
RL J. Clin. Microbiol. 40:3660-3665(2002).
DR EMBL; AF490268; AAN37736.1; -.
FT NON_TER 213
FT NON_TER 213
SQ SEQUENCE 213 AA; 23490 MW; 23B4428409526EAB CRC64;

Query Match 23.2%; Score 111.5; DB 2; Length 213;
Best Local Similarity 28.6%; Pred. No. 4.1;
Matches 32; Conservative 29; Mismatches 32; Indels 19; Gaps 5;

QY 1 QALYESTQEIIEEL-----KDYNEQISEGE-ETLILAIQNKISLDLDDKIAEAEK 48
DB 23 KAELEKAEAELENLLSTLDPEGKTQDELDEKAAEAELENKKVQALQNVAELEEEELSKLED 82
QY 49 --KLADSONGEGVEDYWTSGDEDKLEKLQAEQDELQAELOQLLDEV--DGOE 96
DB 83 NLKVAETNN---VEDYIKKGLAEAIATKQAELEKTQKALDALTALNELGPDGDE 131

RESULT 9

Q8GNT0
ID Q8GNT0 PRELIMINARY; PRT; 211 AA.
AC Q8GNT0
DT 01-MAR-2003 (TremBLrel. 23, Created)
DT 01-MAR-2003 (TremBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.

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RC STRAIN=BG7817;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071826; AAF27719.1; -.
DR InterPro; IPR000533; Tropomyosin.
DR PRINTS; PR00194; TROPOMYOSIN.
FT NON_TER 479 479
SQ SEQUENCE 479 AA; 53257 MW; B9C0D2CA15DE3654 CRC64;

Query Match 24.6%; Score 118; DB 2; Length 479;
Best Local Similarity 31.2%; Pred. No. 3.4;
Matches 29; Conservative 27; Mismatches 27; Indels 10; Gaps 4;

QY 7 TQEQIEELKDYNEQISEGE-ETLILAIQNKISDLDDKIAEKKLADSONGGEVDYWT 65
DB 315 TQDELD-----KEAAEALNKKVQALQNVAELEELSKLEDNLKDAET-NNVEDYIKE 367

QY 66 GDEKLEKLAQAEQDELQAEQLDQLDEV--DGQE 96
DB 368 GLEEAIAATKQAELEKTQKELDAALNELGPDGDE 400

RESULT 3
Q9LAX5 PRELIMINARY; PRT; 481 AA.
ID Q9LAX5
AC Q9LAX5;
RX STRAIN=BG11703;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071821; AAF27716.1; -.
DR HSP; P58301; 1L8D.
FT NON_TER 481 481
SQ SEQUENCE 481 AA; 53500 MW; EA3C66445EFC2B CRC64;

Query Match 24.6%; Score 118; DB 2; Length 481;
Best Local Similarity 31.2%; Pred. No. 3.4;
Matches 29; Conservative 27; Mismatches 27; Indels 10; Gaps 4;

QY 7 TQEQIEELKDYNEQISEGE-ETLILAIQNKISDLDDKIAEKKLADSONGGEVDYWT 65
DB 315 TQDELD-----KEAAEALNKKVQALQNVAELEELSKLEDNLKDAET-NNVEDYIKE 367

QY 66 GDEKLEKLAQAEQDELQAEQLDQLDEV--DGQE 96
DB 368 GLEEAIAATKQAELEKTQKELDAALNELGPDGDE 400

RESULT 4
O34097 PRELIMINARY; PRT; 653 AA.
ID O34097
AC O34097;
RX STRAIN=1998 (TREMBlrel. 05, Created)
DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)
DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)
DT 01-MAR-2004 (TREMBlrel. 26, Last annotation update)

```

```

DE PspA.
GN Streptococcus pneumoniae.
OS Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=EF5668;
RX MEDLINE=98427139; PubMed=9746574;
RA McDaniel L.S., McDaniel D.O., Hollingshead S.K., Briles D.E.;
RT "Comparison of the PspA sequence from Streptococcus pneumoniae EF5668
to the previously identified PspA sequence from strain Rxi and ability
of PspA from EF5668 to elicit protection against pneumococci of
different capsular types.";
RL Infect. Immun. 66:4748-4754(1998).
DR EMBL; U89711; AAC62252.1; -.
DR HSP; P06653; 1HCX
DR InterPro; IPR002479; CW_binding.
DR InterPro; IPR002345; Lipocalin.
DR InterPro; IPR009053; Prefoldin.
DR Pfam; PF01473; CW_binding.1; 9.
DR PROSITE; PS00213; LIPOCALIN; UNKNOWN 1.
SQ SEQUENCE 653 AA; 73058 MW; CF147A96125120FA CRC64;

Query Match 24.0%; Score 115; DB 2; Length 653;
Best Local Similarity 29.5%; Pred. No. 7.4;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNEQISEGEETLILAIQNKISDLDDKIAEKKLADSONGGEVDY 63
DB 296 TQDELDKEAAEALNEKVE-----ALQNQVAELEEELSKLEDNLKDAET-NNVEDYI 346

QY 64 TSGDEKLEKLAQAEQDELQAEQLDQLDEV--DGQE 96
DB 347 KEGLEEAIAATKQAELEKTQKELDAALNELGPDGDE 381

RESULT 5
Q9LSB4 PRELIMINARY; PRT; 246 AA.
ID Q9LSB4
AC Q9LSB4;
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-OCT-2003 (TREMBlrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=PspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal PspA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF253408; AAF67356.1; -.
DR HSP; P05412; 1JNM.
FT NON_TER 246 246
SQ SEQUENCE 246 AA; 26972 MW; 2190EED1460D26D9 CRC64;

Query Match 23.9%; Score 114.5; DB 2; Length 246;
Best Local Similarity 27.3%; Pred. No. 3;

```

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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:32:37 ; Search time 56.9055 Seconds
(without alignments)
863.882 Million cell updates/sec

Title: US-10-674-755-28

Perfect score: 480

Sequence: 1 QALYESTQEQIEELKDYNEQ.....EQDELQAEQLDQLDEVGDQGE 96

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt_03.*

1: uniprot_sprot.*

2: uniprot_trembl.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	480	100.0	463	Q9LAX4	Q9LAX4 streptococc
2	118	24.6	479	Q9LAX2	Q9LAX2 streptococc
3	118	24.6	481	Q9LAX5	Q9LAX5 streptococc
4	115	24.0	653	Q34097	Q34097 streptococc
5	114.5	23.9	246	Q915B4	Q915B4 streptococc
6	114.5	23.9	426	Q9LAX5	Q9LAX5 streptococc
7	114	23.8	107	Q8KQK2	Q8KQK2 streptococc
8	111.5	23.2	213	Q8GNS7	Q8GNS7 streptococc
9	111	23.1	211	Q8GNT0	Q8GNT0 streptococc
10	111	23.1	257	Q91594	Q91594 streptococc
11	110.5	23.0	224	Q8GNS8	Q8GNS8 streptococc
12	110.5	23.0	256	Q91595	Q91595 streptococc
13	110	22.9	2301	Q6BG00	Q6BG00 paramesium
14	109	22.7	3384	Q81L42	Q81L42 plasmodium
15	108	22.5	1024	Q7R219	Q7R219 Giardia lam
16	107.5	22.4	227	Q9KGS0	Q9KGS0 streptococc
17	107.5	22.4	480	Q9LAX3	Q9LAX3 streptococc
18	107.5	22.4	584	Q96YQ6	Q96YQ6 sulfolobus
19	107	22.3	395	Q9LAY2	Q9LAY2 streptococc
20	107	22.3	408	Q9LAY0	Q9LAY0 streptococc
21	107	22.3	1219	Q9NJ23	Q9NJ23 aequipecten
22	107	22.3	1243	Q9NJ22	Q9NJ22 aequipecten
23	107	22.3	1243	Q9NJ21	Q9NJ21 aequipecten
24	107	22.3	1253	Q9NJ20	Q9NJ20 aequipecten
25	107	22.3	1938	1 MYS ASQIR	P24733 aequipecten
26	107	22.3	1941	Q26079	Q26079 placiopecten
27	107	22.3	1950	Q26080	Q26080 placiopecten
28	107	22.3	1951	Q17042	Q17042 aequipecten
29	107	22.3	1979	1 TRIA HUMAN	Q15643 homo sapien
30	106.5	22.2	249	Q9L575	Q9L575 streptococc
31	106	22.1	1940	2 Q9U7E3	Q9U7E3 pecten maxi

32 105 21.9 1162 2 Q98148 human herpe
33 104.5 21.8 461 2 Q9LAX6
34 104 21.7 312 2 Q86BL7
35 104 21.7 566 2 Q9VL65 drosophila
36 104 21.7 1945 2 Q9BLD0 patinopecte
37 103.5 21.6 1992 2 Q04834 xenopus lae
38 103 21.5 222 2 Q9L577
39 103 21.5 262 2 Q9L576
40 103 21.5 415 2 Q9LAY7
41 103 21.5 739 2 Q9RQT4
42 103 21.5 820 2 Q9RQT1
43 103 21.5 929 2 Q9KK19
44 103 21.5 929 2 Q9ZAYS
45 103 21.5 976 2 Q9DUN0 human herpe

ALIGNMENTS

RESULT 1

Q9LAX4 PRELIMINARY; PRT; 463 AA.
AC Q9LAX4;
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-BG6380;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071823; AAF27717.1; -.
FT NON_TER 463 463
SQ SEQUENCE 463 AA; 51608 MW; F8663ED92858BBAF CRC64;
Query Match 100.0%; Score 480; DB 2; Length 463;
Best Local Similarity 100.0%; Pred. No. 3.le-24;
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 QALYESTQEQIEELKDYNEQISEGETLILAIQNKISDLDDKIAEAEKKLADSQNGEGVE 60
Db 240 QALYESTQEQIEELKDYNEQISEGETLILAIQNKISDLDDKIAEAEKKLADSQNGEGVE 299

QY 61 DWYTSGBDDKLEKLAQEQDELQAEQLDQLDEVGDQGE 96
Db 300 DWYTSGBDDKLEKLAQEQDELQAEQLDQLDEVGDQGE 335

RESULT 2

Q9LAX2 PRELIMINARY; PRT; 479 AA.
ID Q9LAX2
AC Q9LAX2;
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.

Science 293, 498-506, 2001
A:Authors: Loftus, B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; Dougherty, B.A.; Morrison,
A:Title: Complete Genome Sequence of a virulent isolate of Streptococcus pneumoniae.
A:Reference number: A95000; MUID:21357209; PMID:11463916
A:Accession: F95013
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-744 <KUR>
A:Cross-references: UNIPROT:Q97T39; GB:AE005672; PIDN:AAK74303.1; PID:gl4971584; GSPDB:G
A:Experimental source: strain TIGR4
C:Genetics:
A:Gene: SP0117

Query Match 20.0%; Score 96; DB 2; Length 744;
Best Local Similarity 30.9%; Pred. No. 15;
Matches 29; Conservative 24; Mismatches 25; Indels 16; Gaps 4;
QY 7 TQEQIEELKDYNEQISEGETLILAIQNKISDLDDKIAEAKKL--ADSQNGEGVEDYWT 64
DB 366 TQDELDKAEAEAEADKKADE-----LQNKVADLEKEISNLEILLGGADSEDD-----T 413
QY 65 SGDEDKLEKLOAEODELOAEFLDQLDEV--DQGE 96
DB 414 AALQNKLATKKALEKTKQKELDAALNELGPDGDE 447

Search completed: November 17, 2005, 20:39:57
Job time : 13.5461 secs

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Query Match      20.1%; Score 96.5; DB 2; Length 296;
Best Local Similarity 26.4%; Pred. No. 5.4;
Matches 28; Conservative 23; Mismatches 40; Indels 15; Gaps 2

Qy      6  STQEQIEELKQYNQISGEETLILATONKISLDLDDK-----TAAEAKKLA 51
      |||::|||::|||::|||::|||::|||::|||::|||::|||
Db      137  STTENLDLNFSTLELSSFDFTLLNSDTSKLSGDSFMEEBFVQVDNVLQCECKKPT 196
      |||::|||::|||::|||::|||::|||::|||::|||

Qy      52  DSONGEVEDVYWTSG-DEDKLEKLOAEODELOAELDLQLLDEVGOE 96

```

[illegible]

A;Accession: J38446
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-670 <MCD>
A;Cross-references: UNIPROT:O42667; EMBL:AL009227; PIDN:CAA15832.1; GSPDB:GN00066; SPDB:SPB000006
A;Experimental source: strain 972h-; cosmid C27D7
R;Yamashita, A.; Watanabe, Y.; Yamamoto, M.
Genes Co Cells 2, 135-166, 1997
A;Title: Microtubule-associated coiled-coil protein Ssm4 is involved in the meiotic division of *Saccharomyces cerevisiae*
A;Reference number: Z14042; MUID:97311255; PMID:9167972
A;Accession: T00012
A;Status: translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-670 <YAM>
A;Cross-references: EMBL:AB000269; NID:G3341860; PIDN:BAA31857.1; PID:G3341861
C;Genetics:
A;Gene: ssm4; SPAC27D7.13c
A;Map position: 1

Query Match	20.1%	Score	96.5;	DB	2;	Length	670;
Best Local Similarity	26.4%	Pred. No.	12;				
Matches	28;	Conservative	23;	Mismatches	40;	Indels	15;
Gaps	2						
QY	6	STQEQIBELKDYNEQISEGETLILAIQNKISLDLDDK-----TAAEAKKUA	51				
Db	137	STTNLDLNFSTBELSGSFDFTLLNSDTSKLSGLDSSFMEEFVQVDNVLQECCKFT	196				
QY	52	DSQNGEGVEDYWTSG-DSDKLEKLAQDEQLQALDQLDLDEVDGQE	96				
Db	197	PHSKGSLYKLNKSELKRGRLDLMNCENTALKKIDKLNKLEKVE	242				

RESULT 15
F95013
pneumococcal surface protein A [imported] - Streptococcus pneumoniae (strain TIGR4)
C:Species: Streptococcus pneumoniae
C:Date: 03-Aug-2001 #sequence_revision 03-Aug-2001 #text_change 09-Jul-2004
C:Accession: F95013
R:Rettelin, H.; Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Read, T.D.; Peterson, S.; Hei-
nson, J.D.; Umayam, L.A.; White, O.; Salzberg, S.L.; Lewis, M.R.; Radune, D.; Holtzap-
ple, T.; Hickey, E.K.; Holt, I.E.

[illegible]

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OM protein - protein search, using sw model

Run on: November 17, 2005, 20:04:33 ; Search time 12.5461 Seconds
(without alignments)
736.230 Million cell updates/sec

Title: US-10-674-755-28

Perfect score: 480

Sequence: 1 QALVSTQEQIEELKDYNEQ.....EQDELQAEQLDLDEVDGQE 96

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

PIR_79:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	107	22.3	1938	1 A40997	myosin heavy chain
2	103.5	21.6	1992	2 A47297	myosin heavy chain
3	102	21.2	1961	1 A61231	myosin heavy chain
4	102	21.2	1999	1 S21801	myosin heavy chain
5	99.5	20.7	619	2 A97887	surface protein ps
6	99.5	20.7	619	2 A41971	myosin heavy chain
7	99	20.6	1976	2 A59252	myosin heavy chain
8	98.5	20.5	166	2 S73342	hypothetical prote
9	98.5	20.5	721	2 S29795	hypothetical prote
10	98.5	20.5	880	2 F75103	conserved hypotet
11	97.5	20.3	199	2 A32183	tropomyosin TPM1 -
12	97	20.2	630	2 S29796	hypothetical prote
13	96.5	20.1	296	2 T38993	microtubule-associ
14	96.5	20.1	670	2 T38445	microtubule-associ
15	96	20.0	744	2 F95013	pneumococcal surfa
16	95.5	19.9	725	2 A47168	cardiac morphogene
17	95.5	19.9	1156	2 E69444	chromosome segrega
18	95.5	19.9	2331	2 T25410	hypothetical prote
19	94.5	19.7	1938	2 A59293	skeletal myosin he
20	93.5	19.5	527	2 S33068	myosin heavy chain
21	93.5	19.5	876	2 A23767	myosin heavy chain
22	93.5	19.5	1940	2 A59287	myosin heavy chain
23	93.5	19.5	2017	1 A36014	myosin heavy chain
24	93.5	19.5	2057	2 S61477	myosin II heavy ch
25	93	19.4	321	2 S49369	mobilization prote
26	93	19.4	446	2 A56733	nuclear domain 10
27	93	19.4	1738	2 T14867	interaptin - slime
28	92.5	19.3	2007	1 B43402	myosin heavy chain
29	91.5	19.1	676	2 S00084	myosin heavy chain

30 91.5 19.1 1837 2 T41023
31 91 19.0 264 2 F71466
32 91 19.0 377 2 C69858
33 91 19.0 501 2 A44643
34 91 19.0 1066 2 AB1228
35 91 19.0 1938 1 MKRW1
36 90.5 18.9 161 2 S48396
37 90.5 18.9 1577 2 T19722
38 90.5 18.9 1957 2 T38077
39 90 18.8 1056 2 E96748
40 89.5 18.6 1078 2 T18352
41 89.5 18.6 1203 2 B55094
42 89.5 18.6 1790 2 S67593
43 89 18.5 279 2 D71453
44 88.5 18.4 168 2 S73644
45 88.5 18.4 542 2 D81323

ALIGNMENTS

RESULT 1

A40997 myosin heavy chain, striated adductor muscle - scallop (Aequipecten irradians)
N:Contains: myosin ATPase (EC 3.6.4.1)
C:Species: Aequipecten irradians
C:Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 09-Jul-2004
C:Accession: A40997; S13557
R:Nyitrai, L.; Goodwin, E.B.; Szent-Gyorgyi, A.G.
J. Biol. Chem. 266, 18469-18476, 1991
A:Title: Complete primary structure of a scallop striated muscle myosin heavy chain. Seq
A:Reference number: A40997; MUID:92011595; PMID:1917970
A:Accession: A40997
A:Molecule type: mRNA
A:Residues: 1-1938 <NYI>
A:Cross-references: UNIPROT:P24733; GB:X55714; MID:g5611; PIDN:CAA39247.1; PID:g5612
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: actin binding; ATP; coiled coil; hydrolase; muscle contraction; nucleotide b
F:86-763/Domain: myosin motor domain homology <WMOT>
F:176-183/Region: nucleotide-binding motif A (P-loop)
F:547-586/Region: actin binding #status predicted
F:653-675/Region: actin binding #status predicted
F:836-1938/Domain: coiled coil #status predicted <COI>
F:836-1276/Region: S2

Query Match

Best Local Similarity 22.3%; Score 107; DB 1; Length 1938;
Matches 29; Conservative 18; Mismatches 33; Indels 28; Gaps 2;
QY 5 ESTQEQIEELKDYNEQIEG-----EETLILAIQNKISLDDKIAAE 47
DB 1057 KSTQENVEDLRVRKELEENVRRKEATISSLNKLEDEQNLVSLQQRKIKELQARIELE 1116
QY 48 KKLADSQNGEGVEDWTSGDEDEKLEKLAQAEQDELQAEQLDLDEVDG 94
DB 1117 ELEAEARNARA-----KVEKQRAELNRELELGERLDEAGG 1152

RESULT 2

A47297 myosin heavy chain form B, nonmuscle - African clawed frog
C:Species: Xenopus laevis (African clawed frog)
C:Date: 22-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004
C:Accession: A47297; A55441
R:Bhatia-Dev, N.; Adelstein, R.S.; Dawid, I.B.
Proc. Natl. Acad. Sci. U.S.A. 90, 2856-2859, 1993
A:Title: Cloning of the cDNA encoding a myosin heavy chain B isoform of Xenopus nonmuscl
A:Reference number: A47297; MUID:93219383; PMID:8464900
A:Accession: A47297
A>Status: preliminary; not compared with conceptual translation

XX 30-MAR-2001; 2001WO-US008631.
XX 31-MAR-2000; 2000US-00540217.
PR 23-AUG-2000; 2000US-00649167.
XX (HYSE-) HYSEQ INC.
PA
XX Drmanac RT, Liu C, Tang YT;
PI
XX WPI; 2001-639362/73.
DR N-PSDB; AAS70488.
XX
PT New isolated polynucleotide and encoded polypeptides, useful in
PT diagnostics, forensics, gene mapping, identification of mutations
PT responsible for genetic disorders or other traits and to assess
PT biodiversity.
XX
PS Claim 20; SEQ ID NO 36660; 103pp; English.
XX
CC The invention relates to isolated polynucleotide (I) and polypeptide (II)
CC sequences. (I) is useful as hybridisation probes, polymerase chain
CC reaction (PCR) primers, oligomers, and for chromosome and gene mapping,
CC and in recombinant production of (II). The polynucleotides are also used
CC in diagnostics as expressed sequence tags for identifying expressed
CC genes. (I) is useful in gene therapy techniques to restore normal
CC activity of (II) or to treat disease states involving (II). (II) is
CC useful for generating antibodies against it, detecting or quantitating a
CC polypeptide in tissue, as molecular weight markers and as a food
CC supplement. (II) and its binding partners are useful in medical imaging
CC of sites expressing (II). (I) and (II) are useful for treating disorders
CC involving aberrant protein expression or biological activity. The
CC polypeptide and polynucleotide sequences have applications in
CC diagnostics, forensics, gene mapping, identification of mutations
CC responsible for genetic disorders or other traits to assess biodiversity
CC and to produce other types of data and products dependent on DNA and
CC amino acid sequences. ABG00010-ABG30377 represent novel human diagnostic
CC amino acid sequences of the invention. Note: The sequence data for this
CC patent did not appear in the printed specification, but was obtained in
CC electronic format directly from WIPO at
CC ftp.wipo.int/pub/published_pct_sequences
XX
SQ Sequence 2017 AA;
Query Match 22.3%; Score 107; DB 4; Length 2017;
Best Local Similarity 25.6%; Pred. No. 1;
Matches 31; Conservative 19; Mismatches 29; Indels 42; Gaps 3;
OY 1 QALVESTQEQIEELKDYNEQISEGETL-----ILAIQ----- 33
DB 313 QKLTISRHRREELSDYBERIEELENLQQGGGVETDLSKIYEMQKTIQVLQIEKVES 372
OY 34 -NKISDLDDKIAEAEKGLADSONGSGVEDYWTSGDEDKLEKIQAEQDELQAEQLDQLDEV 92
DB 373 TKQMEQLEDKIKDINKLSSAENDRDI-----LRRREQNLNVEKQIMEEC 418
OY 93 D 93
DB 419 E 419

Search completed: November 17, 2005, 20:19:45
Job time : 69.2194 secs

DT 24-JUN-2003 (first entry)

CC molecule from the Rxl strain of Streptococcus pneumoniae.

XX Sequence 653 AA;

Query Match 24.0%; Score 115; DB 8; Length 653;

Best Local Similarity 29.5%; Pred. No. 0.053;

Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNEQISEGETLILAIQNKISDLDDKIAEAEKKLADSQNGEGVEDYW 63

Db 296 TQELDKKAEAEAELEKVE-----ALQNVAELEELSKELDNKLDAET--NNVEDYI 346

QY 64 TSGDEKLEKLAQAEDELQAEQLDQLLDEV--DQGE 96

Db 347 KEGLEAEATKKAEELEKTKQELDAALNELGPDGDE 381

RESULT 9

AD052080

ID AD052080 standard; protein; 653 AA.

XX AC AD052080;

DT 12-AUG-2004 (first entry)

DE S. pneumoniae strain EF5688 PspA protein.

KW Immunogenic composition; vaccine; Th2-type immune response;

XX pneumococcal surface protein A; PspA.

OS Streptococcus pneumoniae.

XX FH Key Location/Qualifiers

FT Peptide 1..31

FT Protein /label= Signal_peptide

FT 32..653

FT /note= "S. pneumoniae strain EF5688 mature PspA protein"

FT Domain 110..384

FT /note = PspA alpha-helical domain

XX US2004101531-A1.

XX PD 27-MAY-2004.

XX PF 15-APR-2003; 2003US-00414532.

XX PR 16-APR-2002; 2002US-0372710P.

XX PA (CURT/) CURTISS R.

XX PA (KANG/) KANG H Y.

XX PI Curtiss R, Kang HY;

XX WPI; 2004-399655/37.

DR N-PSDB; AD052067.

XX New vaccine comprising a live attenuated strain of pathogenic gram-negative bacteria, useful in eliciting a Th2-type immune response in a vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans or bacteria.

PS Example 5; SEQ ID NO 26; 94pp; English.

XX The invention relates to immunogenic compositions and vaccines comprising a live attenuated strain of pathogenic gram negative bacteria that secretes an antigen. The vaccine is useful in eliciting a Th2-type immune response in a vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans or bacteria. The present sequence is Streptococcus pneumoniae strain EF5688 pneumococcal surface protein A (PspA). This sequence is used in the exemplification of the invention.

XX Sequence 653 AA;

Query Match 24.0%; Score 115; DB 8; Length 653;

Best Local Similarity 29.5%; Pred. No. 0.053;

Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNEQISEGETLILAIQNKISDLDDKIAEAEKKLADSQNGEGVEDYW 63

Db 296 TQELDKKAEAEAELEKVE-----ALQNVAELEELSKELDNKLDAET--NNVEDYI 346

QY 64 TSGDEKLEKLAQAEDELQAEQLDQLLDEV--DQGE 96

Db 347 KEGLEAEATKKAEELEKTKQELDAALNELGPDGDE 381

RESULT 10

ABU08487

ID ABU08487 standard; protein; 8991 AA.

XX AC ABU08487;

DT 24-JUN-2003 (first entry)

DE S. pneumoniae pneumococcal surface protein A (PspA) protein.

KW Pneumococcal surface protein C; PspC; pneumococcal surface protein A;

KW alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;

XX antibacterial.

XX OS Streptococcus pneumoniae.

XX FH Key Location/Qualifiers

FT Misc-difference 1..8991

FT /note= "All Xaa residues within this sequence are

FT unknown"

XX US6500613-B1.

XX PD 31-DEC-2002.

XX PF 16-SEP-1996; 96US-00714741.

XX PR 15-SEP-1995; 95US-00529055.

XX PA (UYAL-) UNIV ALABAMA.

XX PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;

XX PI Hollingshead S, Tart R, Brooks-Walter A;

XX DR WPI; 2003-361534/34.

XX Isolated PspC amino acid sequence used as polymerase chain reaction or hybridization probe, comprises pneumococcal surface protein having alpha-helical, proline rich and repeat regions.

PS Disclosure; Col 145-188; 186pp; English.

XX The present invention relates to the isolation of Streptococcus

XX pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide

XX sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-

XX like protein having alpha-helical, proline rich and repeat regions. The

XX PspC and PspA proteins may be used in a vaccine to protect against

XX pneumococcal infections. The polynucleotide sequences encoding PspC and

XX PspA may be used for the expression of the proteins, and as PCR primers

XX or hybridisation probes. The present sequence represents S. pneumoniae

XX PspA protein

XX SQ Sequence 8991 AA;

Query Match

Best Local Similarity 24.0%; Score 115; DB 6; Length 8991;

Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;

QY 7 TQEQIEE---LKDYNEQISEGETLILAIQNKISDLDDKIAEAEKKLADSQNGEGVEDYW 63

Db 296 TQELDKKAEAEAELEKVE-----ALQNVAELEELSKELDNKLDAET--NNVEDYI 346

XX 12-AUG-2004 (first entry)
XX S. pneumoniae strain EF5688 PspA alpha helical domain.
XX Immunogenic composition; vaccine; Th2-type immune response ;
XX pneumococcal surface protein A; PspA.
XX Streptococcus pneumoniae.
XX OS US2004101531-A1.
XX PN 27-MAY-2004.
XX PD 15-APR-2003; 2003US-00414532.
XX PF 16-APR-2002; 2002US-0372710P.
XX PR (CURT/) CURTISS R.
XX PA (KANG/) KANG H Y.
XX PI Curtiss R, Kang HY;
XX XX WPI; 2004-399655/37.
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX Claim 17; SEQ ID NO 1; 94pp; English.
XX The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX Sequence 275 AA;
SQ Query Match 24.0%; Score 115; DB 8; Length 275;
Best Local Similarity 29.5%; Pred. No. 0.02;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;
QY 7 TQEQIEE---LKDYNEQISEGETLILAIQNKISLDLDDKIAEAEKKLADSQNGEGVEDYW 63
Db 187 TQDELDKAAEAELNEKVE-----ALQNQVAEELEELSKELDNLKDAET--NNVEDYI 237
QY 64 TSGDEDKLEKLAQDEQLQAEQLDQLLDEV--DGQE 96
Db 238 KEGLEEAATKKAELEKTKQKELDAALNELGPDGE 272
RESULT 5
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX ADK52496;
XX 20-MAY-2004 (first entry)
XX alpha helical region PspA molecule from the Rx1 strain.
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
XX hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
XX Hodgkin's disease.
XX OS Streptococcus pneumoniae.
XX WO2004016231-A2.
XX

PD 26-FEB-2004.
XX 17-FEB-2003; 2003WO-US008199.
XX 15-MAR-2002; 2002US-0365351P.
XX (UABR-) UAB RES FOUND.
XX Briles DE;
XX WPI; 2004-192068/18.
XX Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX Claim 17; SEQ ID NO 2; 4lpp; English.
XX The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface protein A
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents the alpha
CC helical region PspA molecule from the Rx1 strain of Streptococcus
CC pneumoniae.
XX Sequence 369 AA;
SQ Query Match 24.0%; Score 115; DB 8; Length 369;
Best Local Similarity 29.5%; Pred. No. 0.027;
Matches 28; Conservative 28; Mismatches 25; Indels 14; Gaps 4;
QY 7 TQEQIEE---LKDYNEQISEGETLILAIQNKISLDLDDKIAEAEKKLADSQNGEGVEDYW 63
Db 265 TQDELDKAAEAELNEKVE-----ALQNQVAEELEELSKELDNLKDAET--NNVEDYI 315
QY 64 TSGDEDKLEKLAQDEQLQAEQLDQLLDEV--DGQE 96
Db 316 KEGLEEAATKKAELEKTKQKELDAALNELGPDGE 350
RESULT 6
AAW14592
ID AAW14592 standard; protein; 458 AA.
XX AAW14592;
XX 17-OCT-2003 (revised)
DT 27-OCT-1997 (first entry)
XX Streptococcus pneumoniae PspA surface protein.
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
XX bacteraemia; pneumonia.
XX OS Streptococcus pneumoniae; strain Ef5668.
XX WO9709994-A1.
XX 20-MAR-1997.
XX 16-SEP-1996; 96WO-US014819.
XX 15-SEP-1995; 95US-00529055.
XX (UABR-) UAB RES FOUND.
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX

Qy	1	QALYESTQOQIBELKQYNQIQISEGEETLILATONKISLDLDDKIAEAKKLADSONGEGVE	60
Db	1	QALYESTQOQIBELKQYNQIQISEGEETLILATONKISLDLDDKIAEAKKLADSONGEGVE	60
Qy	61	DYWTSGDEDKLEKQAEODELQAEFLDQLLDVDDGQE	96
Db	61	DYWTSGDEDKLEKQAEODELQAEFLDQLLDVDDGQE	96

RESULT 2
ABW02624
ID ABW02624 standard; protein; 232 AA.
XX
XX
ABW02624;
XX
XX
12-FEB-2004 (first entry)
DT
DT
XX
XX
DE Ef5668c pneumococcal surface protein A (PspA) central region.
XX
XX
Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.

db 122 KEGLEEIATKKAELEKTKELDAALNELGPDGDE 156

RESULT 3	
AAW14590	
ID	AAW14590 standard; protein; 233 AA.
XX	
XX	
XX	AAW14590;
XX	
XX	
DT	17-OCT-2003 (revised)
DT	28-OCT-1997 (first entry)
XX	
XX	
DE	Streptococcus pneumoniae PspA central region.

RESULT 4
ADO52055
ID ADO52055 standard; protein; 275 AA.
XX AC ADO52055;

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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 68.2194 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-28
Perfect score: 480
Sequence: 1 QALVSTQEQLHLDKDYNEQ.....EQDELQAEQLDLDEVDDQGE 96

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*
1: Geneseqp1980s:*
2: Geneseqp1990s:*
3: Geneseqp2000s:*
4: Geneseqp2001s:*
5: Geneseqp2002s:*
6: Geneseqp2003as:*
7: Geneseqp2003bs:*
8: Geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	480	100.0	96	2 AAW46292	Pneumoc
2	115	24.0	232	7 ABW02624	Abw02624 Ef5668c p
3	115	24.0	233	2 AAW14590	AAW14590 Streptoco
4	115	24.0	275	8 AD052055	Ado52055 S. pneumo
5	115	24.0	369	8 ADK52496	Adk52496 alpha hel
6	115	24.0	458	2 AAW14592	AAW14592 Streptoco
7	115	24.0	458	7 ABW02626	Abw02626 Ef5668 pn
8	115	24.0	653	8 ADK52495	Adk52495 PspA mole
9	115	24.0	653	8 AD052080	Ado52080 S. pneumo
10	115	24.0	8991	6 ABU08487	Abu08487 S. pneumo
11	109	22.7	211	7 ABW02621	Abw02621 Bg11703c
12	109	22.7	238	2 AAW14587	AAW14587 Streptoco
13	108	22.5	588	6 ABU08491	Abu08491 Coiled co
14	107	22.3	1979	7 ADK75595	Adk75595 Prostata
15	107	22.3	2017	4 ABG06301	Abg06301 Novel hum
16	106	22.1	212	2 AAW14588	AAW14588 Streptoco
17	106	22.1	212	7 ABW02622	Abw02622 Bg7817c p
18	105	21.9	1162	3 AAY96255	Aay96255 Kaposi's
19	105	21.9	1162	3 AAY58500	Aay58500 HHV8 ORF
20	105	21.9	1162	4 AAB62331	Aab62331 Amino aci
21	105	21.9	1162	5 AB05621	Ab05621 Kaposi's
22	105	21.9	1162	8 ADJ65096	Adj65096 HHV8 late
23	104.5	21.8	1231	6 ABU08490	Abu08490 Fragment
24	104	21.7	557	4 ABB67811	Abb67811 Drosophil
25	103	21.5	550	8 ADK48356	Adk48356 Streptoco

26	103	21.5	550	8 ADR95223	Novel S.
27	103	21.5	589	2 AAY43392	PspC alph
28	103	21.5	865	6 ABU08489	Abu08489 S. pneumo
29	103	21.5	929	2 AAW14593	AAW14593 Streptoco
30	103	21.5	929	2 AAY43384	Aay43384 S. pneumo
31	102.5	21.4	459	8 ADO15316	ADO15316 S. pneumo
32	102.5	21.4	605	6 ABU08493	Abu08493 Fragment
33	102	21.2	188	2 AAW14580	AAW14580 Streptoco
34	102	21.2	188	7 ABW02613	Abw02613 Rct129c p
35	102	21.2	289	2 AAW62276	AAW62276 Streptoco
36	102	21.2	289	2 AAY41840	Aay41840 Streptoco
37	102	21.2	289	2 AAW87910	AAW87910 Protein s
38	102	21.2	289	2 AAW92458	AAW92458 S. pneumo
39	102	21.2	1126	8 ADS24511	ADs24511 Bacterial
40	102	21.2	1963	4 AAM79838	Aam79838 Human pro
41	101	21.0	1976	7 ADE63514	Ad63514 Rat Prote
42	101	21.0	1976	7 ADE63518	Ad63518 Rat Prote
43	100.5	20.9	206	2 AAW14574	AAW14574 Streptoco
44	100.5	20.9	206	7 ABW02608	Abw02608 Db15c pne
45	100.5	20.9	653	2 AAR27150	Aar27150 PspA frag

ALIGNMENTS

RESULT 1
AAW46292
ID AAW46292 standard; protein; 96 AA.
XX AC AAW46292;

XX XX 29-JUL-1998 (first entry)
XX DE Pneumococcal surface protein As (PspAs) from clade 6 strain BC6380.
XX KW Streptococcus pneumoniae; vaccine; pneumococcal surface protein As;
XX KW infection; protection; PspAs.
XX OS Streptococcus pneumoniae.
XX XX WO9811915-A1.
XX XX 26-MAR-1998.
XX PF 22-SEP-1997; 97WO-US016761.
XX PR 20-SEP-1996; 96US-00710749.
XX XX (CONN-) CONNAUGHT LAB LTD.
XX Becker RS, Briles DE, Hollingshead S;
XX WPI; 1998-217031/19.

XX New vaccines for protection against pneumococcal infection - comprising at least 2 pneumococcal surface protein As, each selected from a different family.
XX Example 3; Fig 8; 57pp; English.
XX This is the sequence of a pneumococcal surface protein As (PspAs) from strain BC6380, a representative strain of clade 6. This can be used in the preparation of a vaccine composition comprising at least 2 PspAs, each of which is selected from a different family. The vaccines can provide for broad range protection against infection by different Streptococcus pneumoniae strains
XX Sequence 96 AA;

Query Match 100.0%; Score 480; DB 2; Length 96;
Best Local Similarity 100.0%; Pred. No. 3e-36;
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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[illegible]

[illegible][illegible]

```
; TYPE: PRT  
; ORGANISM: Streptococcus pneumoniae  
US-10-299-636-85
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Query Match 49.2%; Score 298.5; DB 15; Length 232;
Best Local Similarity 55.5%; Pred.No. 2.8e+20;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

Qy 1 LEDSGIGLEKVLATLDPGGTDPGLDKAESDSNICALPNQVSDLENQVSELDREVTPLP 60
||| : ||||||| | : ||||| : | : ||||| : ||| :
Db 51 LEDAEELEKVLATLDPEGTQTDELDEKAEE---AELNEKVEALQNQAEELEEELSKE 106
||| : ||||| | : ||||| : | : ||||| : ||| :

Qy 61 SDLKDTEGNNVDYVKGGLEKALTDEKVGNLTTPKALDTAPKALDOTALNELGPDGDBEE 119
:||| : ||||| | : ||||| : | : ||||| : ||| :
Db 107 DNLKDAETNNVEDIYKEGLEEAIAITKKAELEKT-----QKELDAALNELGPDGDBEE 158
:||| : ||||| | : ||||| : | : ||||| : ||| :

RESULT 6
US-10-414-532-1
; Sequence 1, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 1
; LENGTH: 275
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-1

Query Match 49.2%; Score 298.5; DB 16; Length 275;
Best Local Similarity 55.5%; Pred.No. 3.5e+20;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

Qy 1 LEDSGIGLEKVLATLDPGGTDPGLDKAESDSNICALPNQVSDLENQVSELDREVTPLP 60
||| : ||||||| | : ||||| : | : ||||| : ||| :
Db 167 LEDAEELEKVLATLDPECKTQDELDEKAEE---AELNEKVEALQNQAEELEEELSKE 222
||| : ||||||| | : ||||| : | : ||||| : ||| :

Qy 61 SDLKDTEGNNVDYVKGGLEKALTDEKVGNLTTPKALDTAPKALDOTALNELGPDGDBEE 119
:||| : ||||| | : ||||| : | : ||||| : ||| :
Db 223 DNLKDAETNNVEDIYKEGLEEAIAITKKAELEKT-----QKELDAALNELGPDGDBEE 274
:||| : ||||| | : ||||| : | : ||||| : ||| :

RESULT 7
US-10-299-636-88
; Sequence 88, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yoether, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1998-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15

```

US-10-299-636-58
; Sequence 58, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 58
; LENGTH: 215
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; NAME/KEY: UNSURE
; LOCATION: (4)
; OTHER INFORMATION: Xaa at position 4 is unknown
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (16)
; OTHER INFORMATION: Xaa at position 16 is unknown
; OTHER INFORMATION: Xaa at position 16 is unknown
US-10-299-636-58

Query Match      100.0%; Score 607; DB 15; Length 215;
Best Local Similarity 100.0%; Pred. No. 9.5e-50;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy      1 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNOVSDLENQVSELDREVTRLP 60
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      27 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNOVSDLENQVSELDREVTRLP 86

Qy      61 SDKDTEGNNVGVYKGGLEKALTDKVKGLNNTPKALDTPAKALDTPALNEIAGPDGDEE 119
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      87 SDKDTEGNNVGVYKGGLEKALTDKVKGLNNTPKALDTPAKALDTPALNEIAGPDGDEE 145

RESULT 3
US-10-702-305A-18
; Sequence 18, Application US/10702305A
; Publication No. US20040213803A1
; GENERAL INFORMATION:
; APPLICANT: Michael C. Chen
; APPLICANT: Chuang-Jiun Chio
; APPLICANT: Zhongming Li
; APPLICANT: Dong-Sheng Chen
; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING OR
; PREVENTING PNEUMOCOCCAL INFECTION
; FILE REFERENCE: 12844-002001
; CURRENT APPLICATION NUMBER: US/10/702,305A
; CURRENT FILING DATE: 2003-11-06
; PRIOR APPLICATION NUMBER: US 60/424,497
; PRIOR FILING DATE: 2002-11-07
; NUMBER OF SEQ ID NOS: 26
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 18
; LENGTH: 459
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: polypeptide of pSA-60 PspA insert sequence

```

```

US-10-702-305A-18

Query Match      71.2%; Score 432; DB 16; Length 459;
Best Local Similarity 77.4%; Pred. No. 1.3e-32;
Matches 89; Conservative 11; Mismatches 15; Indels 0; Gaps 0;

Qy      1 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNOVSDLENQVSELDREVTRLP 60
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      345 LEDAELEKVLATLDPEGKTQDELDEKAASDANIEALQNKVALEKVAELDKREVTRLQ 404

Qy      61 SDKDTEGNNVGVYKGGLEKALTDKVKGLNNTPKALDTPAKALDTPALNEIAGPDG 115
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      405 SDKDABENNVEDYVKGDLKALTDKKVGLNNTQKALDTAKALDTPALNEIAGPDG 459

RESULT 4
US-10-674-755-25
; Sequence 25, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-25

Query Match      49.2%; Score 298.5; DB 15; Length 108;
Best Local Similarity 55.5%; Pred. No. 1e-20;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

Qy      1 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNOVSDLENQVSELDREVTRLP 60
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      1 LEDAELEKVLATLDPEGKTQDELDEKAEE----AELNEKVEALQNOVALESELSKLE 56

Qy      61 SDKDTEGNNVGVYKGGLEKALTDKVKGLNNTPKALDTPAKALDTPALNEIAGPDGDEE 119
      |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      57 DNLKDAETNNVEDYIKGLESEAIATKKALEKT-----QKELDAALNEIAGPDGDEE 108

RESULT 5
US-10-299-636-85
; Sequence 85, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 85
; LENGTH: 232

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 79.1482 Seconds
(without alignments)
629.082 Million cell updates/sec

Title: US-10-674-755-27
Perfect score: 607
Sequence: 1 LEDSGLEKVLATLDPCGE.....APKALDTALNELPGDDEE 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1867879 seqs, 418409474 residues
Total number of hits satisfying chosen parameters: 1867879

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published Applications AA:*

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21: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*

22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	607	100.0	119	15	US-10-674-755-27
2	607	100.0	215	15	US-10-299-636-58
3	432	71.2	459	16	US-10-702-305A-18
4	298.5	49.2	108	15	US-10-674-755-25
5	298.5	49.2	232	15	US-10-299-636-85
6	298.5	49.2	275	16	US-10-414-532-1
7	298.5	49.2	458	15	US-10-299-636-88
8	298.5	49.2	653	16	US-10-414-532-26
9	287.5	47.4	108	15	US-10-674-755-24
10	280.5	46.2	212	15	US-10-299-636-83
11	279.5	46.0	108	15	US-10-674-755-23
					Sequence 27, Appl
					Sequence 58, Appl
					Sequence 18, Appl
					Sequence 25, Appl
					Sequence 85, Appl
					Sequence 1, Appl
					Sequence 88, Appl
					Sequence 26, Appl
					Sequence 24, Appl
					Sequence 83, Appl
					Sequence 23, Appl

12	279.5	46.0	211	15	US-10-299-636-82	Sequence 82, Appl
13	257.5	42.4	106	15	US-10-674-755-22	Sequence 22, Appl
14	231.5	38.1	108	15	US-10-674-755-26	Sequence 26, Appl
15	228.5	37.6	185	15	US-10-299-636-84	Sequence 84, Appl
16	200.5	33.0	233	15	US-10-299-636-67	Sequence 67, Appl
17	199	32.8	230	16	US-10-414-532-32	Sequence 32, Appl
18	199	32.8	230	16	US-10-414-533-19	Sequence 19, Appl
19	199	32.8	290	16	US-10-414-532-65	Sequence 65, Appl
20	199	32.8	487	16	US-10-414-532-34	Sequence 34, Appl
21	199	32.8	487	16	US-10-414-533-21	Sequence 21, Appl
22	199	32.8	524	16	US-10-414-532-28	Sequence 28, Appl
23	196.5	32.4	213	15	US-10-299-636-62	Sequence 62, Appl
24	193.5	31.9	104	15	US-10-674-755-20	Sequence 20, Appl
25	192.5	31.7	104	15	US-10-674-755-21	Sequence 21, Appl
26	190.5	31.4	197	15	US-10-299-636-59	Sequence 59, Appl
27	190.5	31.4	744	10	US-09-748-875-184	Sequence 184, App
28	190.5	31.4	744	17	US-10-472-928-32	Sequence 32, Appl
29	189.5	31.2	641	9	US-09-765-272-160	Sequence 160, App
30	189.5	31.2	641	20	US-11-106-649-160	Sequence 160, App
31	177.5	29.2	102	15	US-10-674-755-18	Sequence 18, Appl
32	149.5	24.6	80	15	US-10-674-755-19	Sequence 19, Appl
33	119.5	19.7	336	15	US-10-299-636-103	Sequence 103, App
34	113	18.6	141	14	US-10-254-995-2	Sequence 2, Appl
35	113	18.6	204	15	US-10-299-636-66	Sequence 66, Appl
36	113	18.6	589	9	US-09-748-875-14	Sequence 14, Appl
37	113	18.6	589	10	US-09-298-523B-14	Sequence 14, Appl
38	113	18.6	589	15	US-10-299-636-97	Sequence 97, Appl
39	113	18.6	589	18	US-10-341-201-14	Sequence 14, Appl
40	113	18.6	643	15	US-10-299-636-95	Sequence 95, Appl
41	113	18.6	670	9	US-09-748-875-63	Sequence 63, Appl
42	113	18.6	670	10	US-09-298-523B-63	Sequence 63, Appl
43	113	18.6	670	18	US-10-341-201-63	Sequence 63, Appl
44	113	18.6	690	9	US-09-748-875-61	Sequence 61, Appl
45	113	18.6	690	10	US-09-298-523B-61	Sequence 61, Appl

ALIGNMENTS

RESULT 1

US-10-674-755-27

; Sequence 27, Application US/10674755

; Publication No. US20040067237A1

; GENERAL INFORMATION:

; APPLICANT: BECKER et al.

; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS

; FILE REFERENCE: 454312-2471

; CURRENT APPLICATION NUMBER: US/10/674,755

; CURRENT FILING DATE: 2003-09-30

; PRIOR APPLICATION NUMBER: US/09/147,875A

; PRIOR FILING DATE: 1999-05-24

; NUMBER OF SEQ ID NOS: 28

; SOFTWARE: Patentin Ver. 2.1

; SEQ ID NO 27

; LENGTH: 119

; TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

US-10-674-755-27

Query Match Best Local Similarity 100.0%; Score 607; DB 15; Length 119;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db	1	LED	SLGLEKVLATLDPCGETPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP	60
Qy	61	SDL	KDTEGNNVGDYVKGGLKALTDKVGKLNNTPKALDTAPKALDTALNELPGDDEE	119
Db	61	SDL	KDTEGNNVGDYVKGGLKALTDKVGKLNNTPKALDTAPKALDTALNELPGDDEE	119

RESULT 2

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; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match 46.0%; Score 279.5; DB 2; Length 108;
Best Local Similarity 52.1%; Pred. No. 2,1e-21;
Matches 62; Conservative 16; Mismatches 30; Indels 11; Gaps 2;

Qy 1 LEDSGLGLEKVLATDPGGTDPGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 1 LEKAAELENLLSTLDPEGKTQDELDEKAAE-----AELNKKVEALPNQVSELEELSKE 56

Qy 61 SDLKDTGNNVDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPGDDEE 119
Db 57 DNLKDAETNNVEDYIKEGLEAIAATKQAELEKT-----PKELDAALNELGPGDDEE 108

RESULT 14
US-09-147-875A-23
; Sequence 23, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent In Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-23

Query Match 46.0%; Score 279.5; DB 4; Length 108;
Best Local Similarity 52.1%; Pred. No. 2,1e-21;
Matches 62; Conservative 16; Mismatches 30; Indels 11; Gaps 2;

Qy 1 LEDSGLGLEKVLATDPGGTDPGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
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Qy 61 SDLKDTGNNVDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPGDDEE 119
Db 57 DNLKDAETNNVEDYIKEGLEAIAATKQAELEKT-----PKELDAALNELGPGDDEE 108
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RESULT 15

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US-08-529-055-67
; Sequence 67, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 67:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 211 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-67

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Best Local Similarity 52.1%; Pred. No. 5,2e-21;
Matches 62; Conservative 16; Mismatches 30; Indels 11; Gaps 2;

Qy 1 LEDSGLGLEKVLATDPGGTDPGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 25 LEKAAELENLLSTLDPEGKTQDELDEKAAE-----AELNKKVEALPNQVSELEELSKE 80

Qy 61 SDLKDTGNNVDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPGDDEE 119
Db 81 DNLKDAETNNVEDYIKEGLEAIAATKQAELEKT-----PKELDAALNELGPGDDEE 132

Search completed: November 17, 2005, 19:32:24
Job time : 24.0363 secs
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US-08-710-749-22

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Query Match      46.7%; Score 283.5; DB 2; Length 108;
Best Local Similarity 52.1%; Pred. No. 8.3e-22;
Matches 62; Conservative 17; Mismatches 23; Indels 11; Gaps 2;

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  ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
1 LEKAGAGLGNLLTLDLDPGKTDQLDKEAAE-----AELNKKVEALPNQVSELEBSKLE 56

61 SDLKDTGNNYGVYKGLEKALTDKEKVLNNTPKALDTPAKLDLTALNELGPGQDREE 119

57 DNLKDAETNHVEDYIKLEGEIAATKQAELEK-----PKELDAAALNELGPGQDREE 108
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RESULT 11
US-08-710-749-23
; Sequence 23, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-23

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[illegible]

RESULT 12

US-08-529-055-68

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; Sequence 68, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 68:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 212 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-68

Query Match 46.2%; Score 280.5; DB 4; Length 212;
Best Local Similarity 51.3%; Pred. No. 4.1e-21;
Matches 61; Conservative 18; Mismatches 29; Indels 11; Gaps 2;

QY 1 LEDSGLGLEKVLATDPGGSTPDGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 28 LEVAGAGLGNLLSTLDPEGTQDELKEAAE-----AELNKKVVALPNQVALEELSKLE 83
QY 61 SLDLKDTGNNVGDYVRGGLEKALATDEKVLGNLTPPKALDTAPKALDTALNELGPDGDDEE 119
Db 84 DNLKDAETNHRVDYIKEGLEEAATKQAELEKT-----PKELDAALNELGPDGDDEE 135

RESULT 13
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York

```

	Query Match	49.2%; Score 298.5; DB 4; Length 232;
	Best Local Similarity	55.5%; Pred. No. 6.6e-23;
	Matches	66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;
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Dd	51	LEDAELEKVLATLDPEGKTQDELDKAAE---AEINLKVEALQNQVALEEELSKLE 106
		: : : : :
Qy	61	SLDKDTGEENVGVYKGGLEKALITDEKVLGNNTPKALDTAPKALDTALNELGPDGBEE 119
		: : : : :
Dd	107	DNLKDIAETNNVDYIKEGLEEAATKAALAKT-----OKELDAALNELGPDGBEE 158
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RESULT 8
US-08-529-055-73
; Sequence 73, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 458 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-73

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Query Match      49.2%; Score 298.5; DB 4; Length 458;
Best Local Similarity 55.5%; Pred. No. 1.6e-22;
Matches         66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

Qy      1 LEDSGLEKVLATLPGGSTPGCLQKESDSNIGALPNQVSDLENQVSELDREVTRLP 60
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Db      276 LEDAELEKVLATLPDGGTQDELQKAAE-----AELNEKVEALQNQVAEELELSKLE 331

Qy      61 SDLKQTEGNNVGYVVGLEKALTDKVLGNTPPKALDTAPKALDTALNELPGDGEDE 119
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Db      332 DNLKDAETNNVEDYIYKEGLEFATATKKAELKET-----QKELDAALNELPGDGEDE 383

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RESULT 9 .
US-09-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRF
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-24

Query Match          47.4%; Score 287.5; DB 4; Length 108;
Best Local Similarity 52.1%; Pred.No.3.2e-22;
Matches   62; Conservative 18; Mismatches 28; Indels 11; Gaps 2;

QY      1 LEDSGLGLEKVLATDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
        |||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||
Db       1 LEKAGGLENLSTLDPCKTODELDKEAE-----ALENKVEALPNQVAELEELSKLE 56

QY      61 SDLKOTEGNVGDYVKGGLEKALTDEKVGNLNTPKALDTAPKALDTALNELGPGDDEE 119
        :|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db       57 DNLKDAETNHVEDYIKEGLEEAIATQAELKT-----PKELDAALNELGPGDDEE 108


RESULT 10
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCES/DOCKET NUMBER: 454312-2074
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid

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Query Match 100.0%; Score 607; DB 4; Length 8991;
Best Local Similarity 100.0%; Pred. No. 1.7e-52;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDSGLGLEKVLATDPGGETPDGLDKSESDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||||
Db 3874 LEDSGLGLEKVLATDPGGETPDGLDKSESDSNIGALPNQVSDLENQVSELDREVTRLP 3933
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QY 61 SDLKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
|||||
Db 3934 SDLKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 3992
|||||

RESULT 5
US-08-710-749-24
; Sequence 24, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESS: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 24:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-24

Query Match 49.2%; Score 298.5; DB 2; Length 108;
Best Local Similarity 55.5%; Pred. No. 2.4e-23;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

QY 1 LEDSGLGLEKVLATDPGGETPDGLDKSESDSNIGALPNQVSDLENQVSELDREVTRLP 60
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Db 1 LEDAELEKVLATLDPGKTQDELDKAAE----AELNEKVEALQNQVAEEELSLE 56
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QY 61 SDLKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
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RESULT 6
US-09-147-875A-25
; Sequence 25, Application US/09147875A
; Patent No. 6638516

; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-25

Query Match 49.2%; Score 298.5; DB 4; Length 108;
Best Local Similarity 55.5%; Pred. No. 2.4e-23;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

QY 1 LEDSGLGLEKVLATDPGGETPDGLDKSESDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||||
Db 1 LEDAELEKVLATLDPGKTQDELDKAAE----AELNEKVEALQNQVAEEELSLE 56
|||||

QY 61 SDLKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
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Db 57 DNLKDAETNNVEDYIKEGLEEAIAATKAELEKT-----QKELDAALNELGPDGDEEE 108
|||||

RESULT 7
US-08-529-055-70
; Sequence 70, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swatlow, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 70:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 232 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-70


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; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 43:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 215 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-43

Query Match 100.0%; Score 607; DB 4;
Best Local Similarity 100.0%; Pred. No. 1.2e-54;
Matches 119; Conservative 0; Mismatches 0;

QY 1 LEDSGLGLEKVLATDPGETPDGLDKGASEDSNTGALPN
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Db 27 LEDSGLGLEKVLATDPGETPDGLDKGASEDSNTGALPN
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QY 61 SPLDKTEGNNVDYVKGGLGKALTDEKVLGNNTPKALDTA
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Db 87 SPLDKTEGNNVDYVKGGLGKALTDEKVLGNNTPKALDTA
|||

RESULT 4
US-08-714-741-32
; Sequence 32, Application US/08714741
; Patent No. 6500613
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS
; TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM
; TITLE OF INVENTION: PORTIONS AND PRODUCTS
; NUMBER OF SEQUENCES: 47
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: U.S.
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/714,741
; FILING DATE: 16-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-714-741-32

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 18:59:20 ; Search time 22.9113 Seconds
(without alignments)
387.723 Million cell updates/sec

Title: US-10-674-755-27
Perfect score: 607
Sequence: 1 LEDSGLEKVLATLDPGGE.....APKALDTALNELGPDGDEEE 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
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2: /cgn2_6/ptodata/1/1aa/5B_COMB.pep:*
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4: /cgn2_6/ptodata/1/1aa/6B_COMB.pep:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	607	100.0	119	2	US-08-710-749-27
2	607	100.0	119	4	US-09-147-875A-27
3	607	100.0	215	4	US-08-529-055-43
4	607	100.0	8991	4	US-08-714-741-32
5	298.5	49.2	108	2	US-08-710-749-24
6	298.5	49.2	108	4	US-09-147-875A-25
7	298.5	49.2	232	4	US-08-529-055-70
8	298.5	49.2	458	4	US-08-529-055-73
9	287.5	47.4	108	4	US-09-147-875A-24
10	283.5	46.7	108	2	US-08-710-749-22
11	283.5	46.7	108	2	US-08-710-749-23
12	280.5	46.2	212	4	US-08-529-055-68
13	279.5	46.0	108	2	US-08-710-749-26
14	279.5	46.0	108	4	US-09-147-875A-23
15	279.5	46.0	211	4	US-08-529-055-67
16	257.5	42.4	106	4	US-09-147-875A-22
17	231.5	38.1	108	2	US-08-710-749-25
18	231.5	38.1	108	4	US-09-147-875A-26
19	228.5	37.6	185	4	US-08-529-055-69
20	200.5	33.0	104	2	US-08-710-749-20
21	200.5	33.0	233	4	US-08-529-055-52
22	196.5	32.4	213	4	US-08-529-055-47
23	193.5	31.9	104	2	US-08-710-749-19
24	193.5	31.9	104	4	US-09-147-875A-20
25	192.5	31.7	104	4	US-09-147-875A-21
26	190.5	31.4	197	4	US-08-529-055-44
27	189.5	31.2	641	3	US-08-961-083-160

28	189.5	31.2	641	4	US-09-536-784-160	Sequence 160, Appl
29	177.5	29.2	102	2	US-08-710-749-21	Sequence 21, Appl
30	177.5	29.2	102	4	US-09-147-875A-18	Sequence 18, Appl
31	149.5	24.6	80	2	US-08-710-749-18	Sequence 18, Appl
32	149.5	24.6	80	4	US-09-147-875A-19	Sequence 19, Appl
33	114.5	18.9	1231	4	US-08-714-741-41	Sequence 41, Appl
34	114	18.8	289	1	US-08-072-070-4	Sequence 4, Appl
35	114	18.8	289	1	US-08-469-434-4	Sequence 4, Appl
36	114	18.8	289	1	US-08-214-222-4	Sequence 4, Appl
37	114	18.8	289	2	US-08-467-852A-5	Sequence 5, Appl
38	114	18.8	289	2	US-08-468-718-4	Sequence 4, Appl
39	114	18.8	289	2	US-08-247-491A-5	Sequence 5, Appl
40	113	18.6	141	4	US-09-286-981B-2	Sequence 2, Appl
41	113	18.6	204	4	US-08-529-055-51	Sequence 51, Appl
42	113	18.6	864	4	US-08-714-741-40	Sequence 40, Appl
43	112	18.5	100	4	US-09-147-875A-12	Sequence 12, Appl
44	112	18.5	198	4	US-08-529-055-61	Sequence 61, Appl
45	112	18.5	619	1	US-08-465-746-2	Sequence 2, Appl

ALIGNMENTS

RESULT 1
US-08-710-749-27
; Sequence 27, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David B.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESS: Curtis, Morris & Safford
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 27:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 119 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-27

Query Match 100.0%; Score 607; DB 2; Length 119;
Best Local Similarity 100.0%; Pred. No. 5.4e-55;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNQVSDLENQVSELDREVTRLP 60
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DB 1 LEDSGLEKVLATLDPGGETPDGLDKAESDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||||

Db 77 LEKLLDLDPEGKTQDELDKEAAEAELOKKVEALQNKVADLEKEISNL----- 124
Qy 65 DTEGNNVG DYKGGLEKALTDEKVLNN---TPKA-LDTAPKALDTALNELGPDGDDEE 119
Db 125 -----EILLGGADS--EDDTAALQNKLATKKAELEKTQKELDAALNELGPDGDDEE 173

Search completed: November 17, 2005, 20:37:54
Job time : 70.5391 secs

[illegible]

	OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;	
	OC	Streptococcus.	
	OX	NCBI_TaxID=1313;	
	RN	[1]	
	RP	SEQUENCE FROM N.A.	
	RC	STRAIN=115;	
	RX	MEDLINE=20472698; PubMed=11015380;	
	RA	Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;	
	RT	"Pneumococcal pspA sequence types of prevalent multiresistant	
	RT	pneumococcal strains in the United States and of internationally	
	RT	disseminated clones.";	
	RL	J. Clin. Microbiol. 38:3663-3669(2000).	
	RN	[2]	
	RP	SEQUENCE FROM N.A.	
	RC	STRAIN=115;	
	RA	Beall B.W.;	
	RL	Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.	
	DR	EMBL; AF254256; AAF68091.1; -	
	FT	NON_TER 1	
	FT	NON TER 209 209	
	SQ	SEQUENCE 209 AA; 22628 MW; 06FF588F7C3BD5B7 CRC64;	
	Query Match	32.4%; Score 196.5; DB 2; Length 209;	
	Best Local Similarity	41.9%; Pred.No.2.3e-07;	
	Matches	49; Conservative 19; Mismatches 26; Indels 23; Gaps 5;	
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Dd	b	25 GLEKLDSLDPGKTQDELDKEAE-----AELDKADELNKVADLEKEISNL----- 73 : : : : : :	
Qy	y	67 EGNNVDGYVKGLEKALTDEKVGMLN---TPKA-LDTAPKALDTALNELGPDGDEEE 119 : : : : : : : : : : : : : : : : : : :	
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ID	AC	PRELIMINARY; PRT; 242 AA.	
IC	Q9LS562;		
DT	01-OCT-2000 (Tremblrel. 15, Created)		
DT	01-OCT-2000 (Tremblrel. 15, Last sequence update)		
DT	01-MAR-2004 (Tremblrel. 26, Last annotation update)		
DE	PepA (Fragment).		
GN	Name=pspA;		
OS	Streptococcus pneumoniae.		
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;		
OC	Streptococcus.		
OX	NCBI_TaxID=1313;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=69;		
RX	MEDLINE=20472698; PubMed=11015380;		
RA	Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;		
RT	"Pneumococcal pspA sequence types of prevalent multiresistant		
RT	pneumococcal strains in the United States and of internationally		
RT	disseminated clones.";		
RL	J. Clin. Microbiol. 38:3663-3669(2000).		
RN	[2]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=69;		
RA	Beall B.W.;		
RL	Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.		
DR	EMBL; AF255908; AAF70098.1; -		
FT	NON_TER 1		
FT	NON TER 242 242		
SQ	SEQUENCE 242 AA; 25843 MW; 707EA930797D2C82 CRC64;		
Query Match	32.4%; Score 196.5; DB 2; Length 242;		
Best Local Similarity	42.9%; Pred.No.2.8e-07;		
Matches	51; Conservative 14; Mismatches 25; Indels 29; Gaps 5;		
Qy	Y	8 LEKVIATLPDGGTEPDGLDKEASE----DSNTGALPNQVSDLENQVSELDREVTRLPSDLK 64 : : : : : :	
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FT	NON_TER 480 480		
SQ	SEQUENCE 480 AA; 53043 MW; DA013C9E0190D7A0 CRC64;		
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Best Local Similarity	47.1%; Pred.No.6.6e-11;		
Matches	56; Conservative 20; Mismatches 32; Indels 11; Gaps 2;		
Qy	1 LEDSGLGLEKLVATLPDGGTEPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60 : : : : : : :		
Dd	295 LEKAEALEENLLSLDPEGKTQDELDEKAAE---AELKKVEALNQVALEEELSLE 350 : : : : : : :		
Qy	61 SDLKTDTEGNNVDGYVKGLEKALTDEKVGMLNPALKDTAPKALDTALNELGPDGDEEE 119 : : : : : : :		
Dd	351 DNLKDAAETNNVEDYIKEGLEEAITQAELEKT-----QKDVDAALNDLVPDGBEEE 402 : : : : : : :		
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ID	Q9LS584		
AC	PRELIMINARY; PRT; 222 AA.		
IC	Q9LS584;		
DT	01-OCT-2000 (Tremblrel. 15, Created)		
DT	01-OCT-2000 (Tremblrel. 15, Last sequence update)		
DT	01-OCT-2003 (Tremblrel. 25, Last annotation update)		
DE	PepA (Fragment).		
GN	Name=pspA;		
OS	Streptococcus pneumoniae.		
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;		
OC	Streptococcus.		
OX	NCBI_TaxID=1313;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=43;		
RX	MEDLINE=20472698; PubMed=11015380;		
RA	Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;		
RT	"Pneumococcal pspA sequence types of prevalent multiresistant		
RT	pneumococcal strains in the United States and of internationally		
RT	disseminated clones.";		
RL	J. Clin. Microbiol. 38:3663-3669(2000).		
RN	[2]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=		

[illegible]

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Query Match          70.8%; Score 430; DB 2; Length 211;
Best Local Similarity 74.8%; Pred. No. 3.7e-25;
Matches 89; Conservative 11; Mismatches 19; Indels 0; Gaps 0;

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DB 5 LEKAEAELENLLSTLDPEGKTQDELDEKAAE-----AELNKVEALQNVAELEELSLE 64

QY 61 SLDKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119
DB 65 SLDKDAENNVEDYVKGGLKALTDKVKGLNNTQKALDTAQKALDTALNELGPDGDEE 123

RESULT 6
O34097 PRELIMINARY; PRT; 653 AA.
AC O34097;
DT 01-JAN-1998 (TReMBLrel. 05, Created)
DT 01-JAN-1998 (TReMBLrel. 05, Last sequence update)
DT 01-WAR-2004 (TReMBLrel. 26, Last annotation update)
DE PspA.
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=EF5668;
RX MEDLINE=98427139; PubMed=9746574;
RA McDaniel L.S., McDaniel D.O., Hollingshead S.K., Briles D.E.;
RT "Comparison of the PspA sequence from Streptococcus pneumoniae EF5668
RT to the previously identified PspA sequence from strain Rxl and ability
RT of PspA from EF5668 to elicit protection against pneumococci of
RT different capsular types.";
RL Infect. Immun. 66:4748-4754 (1998) .
DR HSPB; U89711; AAC62252.1; -.
DR HSPB; P06653; IHCC.
DR InterPro; IPR002479; CW binding.
DR InterPro; IPR002345; Lipocalin.
DR InterPro; IPR009053; Prefoldin.
DR Pfam; PF01473; CW binding 1; 9.
DR PROSITE; PS00213; LIPOCALIN; UNKNOWN 1.
DR PROSITE; PS00213; LIPOCALIN; UNKNOWN 1.
SQ SEQUENCE 653 AA; 73058 MW; CF147A96125120FA CRC64;

Query Match          49.2%; Score 298.5; DB 2; Length 653;
Best Local Similarity 55.5%; Pred. No. 1.5e-14;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;

QY 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
DB 276 LEDAELEKVLATLDPGKTQDELDEKAAE-----AELNKVEALQNVAELEELSLE 331

QY 61 SLDKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119
DB 332 DNLKDAETNNVEDYIKEGLEEAIA TKAELEKT-----QKELDAALNELGPDGDEE 383

RESULT 7
Q9L5B4 PRELIMINARY; PRT; 246 AA.
AC Q9L5B4;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]

Query Match          44.7%; Score 271.5; DB 2; Length 479;
Best Local Similarity 50.4%; Pred. No. 1.2e-12;
Matches 60; Conservative 18; Mismatches 30; Indels 11; Gaps 2;

QY 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSELDREVTRLP 60
DB 295 LEKAEAELENLLSTLDPEGKTQDELDEKAAE-----AELNKVEALQNVAELEELSLE 350

QY 61 SLDKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119
DB 351 DNLKDAETNNVEDYIKEGLEEAIA TKAELEKT-----QKELDAALNELGPDGDEE 402
```

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RC STRAIN=SP220;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669 (2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254254; AAF68089.1; -.
FT NON_TER 1
FT NON_TER 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match 75.1%; Score 456; DB 2; Length 256;
Best Local Similarity 79.0%; Pred. No. 4.8e-27;
Matches 94; Conservative 10; Mismatches 15; Indels 0; Gaps 0;

Qy 1 LEDSGLGLEKVLATLDPGGTPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 52 LEDAELEKVLATLDPGGKTQDELKAEADANIEALQNKVADLENKVSELDREVTRLQ 111
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Qy 61 SDLKDTGNNVGVYKGGLEKALTDEKVLNNTPKALDTPAKALDTALNELGPDGDEEE 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 112 SDLKDAEENNVEDYVKEGLEKALTDEKVLNNTQKALDTAKALDTALNELGPDGDEEE 170
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

RESULT 3
Q9KGS0
ID Q9KGS0 PRELIMINARY; PRT; 227 AA.
AC Q9KGS0;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669 (2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RA Beall B.W.;
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF288751; AAF91495.1; -.
FT NON_TER 1
FT NON_TER 227
SQ SEQUENCE 227 AA; 24994 MW; 9D24C706228052A6 CRC64;

Query Match 74.6%; Score 453; DB 2; Length 227;
Best Local Similarity 78.2%; Pred. No. 7e-27;
Matches 93; Conservative 11; Mismatches 15; Indels 0; Gaps 0;

Qy 1 LEDSGLGLEKVLATLDPGGTPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 23 LEDAELEKVLATLDPGGKTQDELKAEADANIEALQNKVADLENKVSELDREVTRLQ 82
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Qy 61 SDLKDTGNNVGVYKGGLEKALTDEKVLNNTPKALDTPAKALDTALNELGPDGDEEE 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 83 SDLKDAEENNVEDYVKEGLEKALTDEKVLNNTQKALDTAKALDTALNELGPDGDEEE 141
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

```

```

RESULT 4
Q9L594
ID Q9L594 PRELIMINARY; PRT; 257 AA.
AC Q9L594;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE pspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669 (2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254255; AAF68090.1; -.
FT NON_TER 1
FT NON_TER 257
SQ SEQUENCE 257 AA; 28241 MW; 8470B68C949A133D CRC64;

Query Match 71.3%; Score 433; DB 2; Length 257;
Best Local Similarity 74.8%; Pred. No. 2.7e-25;
Matches 89; Conservative 12; Mismatches 18; Indels 0; Gaps 0;

Qy 1 LEDSGLGLEKVLATLDPGGTPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 51 LEKAEAELENLLSTLDPEGKTQDELKAEADANIEALQNKVADLENKVSELDREVTRLQ 110
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Qy 61 SDLKDTGNNVGVYKGGLEKALTDEKVLNNTPKALDTPAKALDTALNELGPDGDEEE 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 111 SDLKDAEENNVEDYVKEGLEKALTDEKVLNNTQKALDTAKALDTALNELGPDGDEEE 169
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

RESULT 5
Q8GNT0
ID Q8GNT0 PRELIMINARY; PRT; 211 AA.
AC Q8GNT0;
DT 01-MAR-2003 (TReMBLrel. 23, Created)
DT 01-MAR-2003 (TReMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE pspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP95;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicuonzo G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
RA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
RT Italian patients.";
RL J. Clin. Microbiol. 40:3660-3665 (2002).
DR EMBL; AF490265; AAN37733.1; -.
FT NON_TER 1
FT NON_TER 211
SQ SEQUENCE 211 AA; 23207 MW; 096BFBE08DC6483 CRC64;

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:32:37 ; Search time 70.5391 Seconds
(without alignments)
863.882 Million cell updates/sec

Title: US-10-674-755-27
Perfect score: 607
Sequence: 1 LEDSGLGLEKVLATDPGGE.....APKALDTALNELGPDGDEEE 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : UniProt_03.*

1: uniprot_sprot.*

2: uniprot_trembl.*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	464	76.4	461	Q9LAX6	Q9LAX6 streptococc
2	456	75.1	256	Q9L595	Q9L595 streptococc
3	453	74.6	227	Q9KGS0	Q9KGS0 streptococc
4	433	71.3	257	Q9L594	Q9L594 streptococc
5	430	70.8	211	Q8GNT0	Q8GNT0 streptococc
6	298.5	49.2	653	Q34097	Q34097 streptococc
7	275.5	45.4	246	Q9L5B4	Q9L5B4 streptococc
8	271.5	44.7	479	Q9LAX2	Q9LAX2 streptococc
9	271.5	44.7	481	Q9LAX5	Q9LAX5 streptococc
10	270.5	44.6	107	Q8KQK2	Q8KQK2 streptococc
11	264.5	43.6	213	Q8GNS7	Q8GNS7 streptococc
12	248.5	40.9	480	Q9LAX3	Q9LAX3 streptococc
13	197.5	32.5	222	Q9L584	Q9L584 streptococc
14	196.5	32.4	209	Q9L593	Q9L593 streptococc
15	196.5	32.4	242	Q9L562	Q9L562 streptococc
16	190.5	31.4	228	Q9L5B8	Q9L5B8 streptococc
17	190.5	31.4	235	Q9L582	Q9L582 streptococc
18	190.5	31.4	249	Q9L585	Q9L585 streptococc
19	190.5	31.4	249	Q9L5D4	Q9L5D4 streptococc
20	190.5	31.4	252	Q9L583	Q9L583 streptococc
21	190.5	31.4	256	Q9L590	Q9L590 streptococc
22	190.5	31.4	360	Q8KQK3	Q8KQK3 streptococc
23	190.5	31.4	429	Q9LAX7	Q9LAX7 streptococc
24	190.5	31.4	526	Q9LAX9	Q9LAX9 streptococc
25	190.5	31.4	608	Q8VQ55	Q8VQ55 streptococc
26	190.5	31.4	744	Q97T39	Q97T39 streptococc
27	189.5	31.2	231	Q9L579	Q9L579 streptococc
28	188.5	31.2	241	Q9L580	Q9L580 streptococc
29	189.5	31.2	249	Q9L5B7	Q9L5B7 streptococc
30	185.5	30.6	502	Q9LAX8	Q9LAX8 streptococc
31	113	18.6	417	Q9LAY3	Q9LAY3 streptococc

32	113	18.6	739	2	Q9RQT4	Q9RQT4 streptococc
33	113	18.6	820	2	Q9RQT1	Q9RQT1 streptococc
34	113	18.6	929	2	Q9KKI9	Q9KKI9 streptococc
35	113	18.6	929	2	Q9ZAY5	Q9ZAY5 streptococc
36	112	18.5	619	2	O54972	O54972 streptococc
37	112	18.5	619	2	Q8DR10	Q8DR10 streptococc
38	108	17.6	415	2	Q9LAY1	Q9LAY1 streptococc
39	107	17.6	99	2	Q8KQK4	Q8KQK4 streptococc
40	106	17.5	224	2	Q8GNS8	Q8GNS8 streptococc
41	106	17.5	249	2	Q9L575	Q9L575 streptococc
42	106	17.5	395	2	Q9LAY2	Q9LAY2 streptococc
43	106	17.5	408	2	Q9LAY0	Q9LAY0 streptococc
44	106	17.5	426	2	Q9LAY5	Q9LAY5 streptococc
45	106	17.5	437	2	Q9LAY4	Q9LAY4 streptococc

ALIGNMENTS

RESULT 1						
Q9LAX6						
ID	Q9LAX6	PRELIMINARY;		PRT;	461 AA.	
AC	Q9LAX6;					
DT	01-OCT-2000 (T-EMBLrel. 15, Created)					
DT	01-OCT-2000 (T-EMBLrel. 15, Last sequence update)					
DT	01-MAR-2003 (T-EMBLrel. 23, Last annotation update)					
DE	Pspa (Fragment).					
GN	Name=pspA;					
OS	Streptococcus pneumoniae.					
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;					
OC	Streptococcus.					
OX	NCBI_TaxID=1313;					
RN	[1]					
RP	SEQUENCE FROM N.A.					
RC	STRAIN=ATCC6303;					
RX	MEDLINE=20448953; PubMed=10992499;					
RX	DOI=10.1128/IAI.68.10.5889-5900.2000;					
RA	Hollingshead S.K., Becker R., Briles D.E.;					
RT	"Diversity of PspA: mosaic genes and evidence for past recombination					
RT	in Streptococcus pneumoniae.";					
RL	Infect. Immun. 68:5889-5900(2000).					
DR	EMBL; AF071820; AAF27715.1; -.					
FT	NON TER 461					
SQ	SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;					
Query Match 76.4%; Score 464; DB 2; Length 461;						
Best Local Similarity 79.8%; Pred. No. 2.3e-27;						
Matches 95; Conservative 10; Mismatches 14; Indels 0; Gaps 0;						
QY	1	LEDSGLGLEKVLATDPGGETPDGLDKAESDSNIGALPNQVSDLENOVSELDREVTRLP	60			
Db	273	LEDAELEKVLATLDPEGKTQDELDKAEADANIEALQNKVADLENKVAEIDKEVTRLQ	332			
QY 61 SLDKDTGNNVGVYKGLGKALTDKGLNNTPKALDTAPKALDTALNELGPDGDEEE 119						
Db	333	SLDKDAEENNVGYKGLGKALTDKGLNNTPKALDTAPKALDTALNELGPDGDEEE	391			
RESULT 2						
Q9L595						
ID	Q9L595	PRELIMINARY;		PRT;	256 AA.	
AC	Q9L595;					
DT	01-OCT-2000 (T-EMBLrel. 15, Created)					
DT	01-OCT-2000 (T-EMBLrel. 15, Last sequence update)					
DT	01-OCT-2003 (T-EMBLrel. 25, Last annotation update)					
DE	Pspa (Fragment).					
GN	Name=pspA;					
OS	Streptococcus pneumoniae.					
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;					
OC	Streptococcus.					
OX	NCBI_TaxID=1313;					
RN	[1]					
RP	SEQUENCE FROM N.A.					

Db 1043 LEDSLEREKRAPADLDKOKRKEGELKIAQE--NIDESGRORHDLNNLKKKSELHSVS 1100
Qy 61 SDLKDTGEG--NNVGDYVKGG-----LEKALTDEKVGVLNNTIPKALDTAPKALDTALNELG 112
Db 1101 SRLEDEQALVSKLQRQIKDQSGSRISSELEEELENER---QSRSKA-DRAKSDIQRELEELG 1156
Qy 113 PDGDEE 118
Db 1157 EKLDEQ 1162

Search completed: November 17, 2005, 20:39:56
Job time : 17.5519 secs

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Qy      92  NTPKALDTAPKALDATALNELGPGCD 116
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Db      191  TTRATLESARTALDAVAARKPDL 215

RESULT 15
MWKW
myosin heavy chain B [similarity] - Caenorhabditis elegans
N;Contains: myosin ATPase (EC 3.6.4.1)
C;Species: Caenorhabditis elegans
C;Date: 13-Jun-1983 #sequence revision 19-May-2000 #text.ch
C;Accession: T20770; T21629; A93958; A93287; A21074; A02992
R;Kershaw, J.
submitted to the EMBL Data Library, November 1996
A;Reference number: Z19322
A;Accession: T20770
A;Status: translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-1963 <WIL>
A;Cross-references: UNIPROT:O02244; EMBL:Z81499; PIDN:CA804
A;Experimental source: clone F11C3

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A/Accession: 121822
A/Status: translated from GB/EMBL/DBJ
A/Molecule type: DNA
A/Residues: 1-1963 <W12>
A/Cross-references: EMBL:Z83107; PIDN:CAB05505.1; GSPDB:GN00019; CESP:F11C3.3
A/Experimental source: clone F32A7
R/Karn, J.; Brenner, S.; Barnett, L.
Proc. Natl. Acad. Sci. U.S.A. 80, 4253-4257, 1983
A/Title: Protein structural domains in the Caenorhabditis elegans unc-54 myosin heavy c α
A/Reference number: A93958; MUID:83273600; PMID:6576334
A/Accession: A93958
A/Molecule type: DNA
A/Residues: 1-61, 'EMSVIQ', 65-376, 'V', 378-1963 <KAR>
A/Cross-references: GB:J01050; NID:g156399; PIDN:AAA28124.1; PID:g156400
R/McLachlan, A.D.; Karn, J.
Nature 299, 226-231, 1982

A;Accession: A33287
A;Molecule type: DNA
A;Residues: 847-1333, 'R', 1335-1876, 'L', 1878-1963 <MCL>
A;R:Walls, N.; Gesteland, R.F.; Karn, J.; Barnett, L.; Bolten, S.; Waterston, R.H.
Cell 33, 575-583, 1983
A;Title: The genes sup-7 X and sup-5 III of *Caenorhabditis elegans* suppress amber nonsense
A;Reference number: A21074; MUID:8332892; PMID:6571695
A;Accession: A21074
A;Molecule type: DNA
A;Residues: 1873-1963 <WT3>
A;Cross-references: GB:V01494; GB:J01049; NID:G6783; PIDN:CAA24738.1; PID:G6784
C;Genetics:
A;Gene: unc-54; CESP:F11C3.3
A;Map position: 1
A;Interons: 21/3; 64/3; 111/3; 264/1; 525/3; 951/2; 1747/3; 1819/3; 1894/3
C;Superfamily: myosin heavy chain; myosin motor domain homology
C;Keywords: actin binding; ATP; coiled coil; hydrolase; methylated amino acid; muscle co
F;84-7/5/Domain: myosin motor domain homology <MMOT>
F;174-181/Region: nucleotide-binding motif A (P-loop)
P;662-684/Region: actin binding #status predicted
P;766-780/Region: actin binding #status predicted

F;848-1963/Domain: Corred Col1 #status predicted <Col1>
 F;848-1162/Region: S2
 F;1163-1963/Region: light meromyosin
 F;125/Modified site: N6,N6-trimethyllysine (Lys) #status predicted
 F;180/Binding site: ATP (Lys) #status predicted
 F;702,712/Active site: Cys #status predicted

Query Match 13.8%; Score 84; DB 1; Length 1963;
 Best Local Similarity 31.0%; Pred. No. 1.2e+02;
 Matches 39; Conservative 18; Mismatches 55; Indels 14; Gaps 5;

Qv 1 LEDSGLGLEKVLATLDPGGETPDGLDKKASEDSNIGALPNQVSDLENQVSELDREVTRLP 60

Qy 3 DSGLGLEKV-----LATLDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSE 51
Db NSNLGTAMTRDVLVSFLTGTKITSSSELGQELLEIEDAKASQDA-VDAINKQ---MEESLKE 841
Qy 52 LDREVTPLPSDLKDTEG-----NNVDGYVKGGLK-----ALTDEKVGVLNN 92
Db LDQSVADLDSKLEDTSGRLQEQVNDLKNVSGTLDKVNDALQQVEDSNAALVELQETVSE 901
Qy 93 TPKALDTPAKALDTALN 109
Db QGKAIAGAVEAAHALD 918
RESULT 6
T14966
phase lambda-related host specificity protein J - Yersinia pestis plasmid pMT1
C:Species: Yersinia pestis
C:Date: 20-Sep-1999 #sequence_revision 20-Sep-1999 #text_change 09-Jul-2004
R:Accession: T14966
C:Lindler, L.E.; Plano, G.V.; Burland, V.; Mayhew, G.F.; Blattner, F.R.
A:Title: Complete DNA sequence and detailed analysis of the Yersinia pestis KIM5 plasmid
A:Reference number: Z18268; MUID:99043898; PMID:9826348
A:Accession: T14966
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-1545 <LIN>
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C:Genetics:
A:Gene: Y1049
A:Genome: plasmid pMT1
Query Match 15.7% Score 95; DB 2; Length 1545;
Best Local Similarity 26.3%; Pred.No.12;
Matches 36; Conservative 27; Mismatches 40; Indels 34; Gaps 5;
Qy 3 DSGLGLEKV-----LATLDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSE 51
Db NSNLGTAMTRDVLVSFLTGTKITSSSELGQELLEIEDAKASQDA-VDAINKQ---MEESLKE 882
Qy 52 LDREVTPLPSDLKDTEG-----NNVDGYVKGGLK-----ALTDEKVGVLNN 92
Db LDQSVADLDSKLEDTSGRLQEQVNDLKNVSGTLDKVNDALQQVEDSNAALVELQETVSE 942
Qy 93 TPKALDTPAKALDTALN 109
Db QGKAIAGAVEAAHALD 959
RESULT 7
AF0211
probable ABC transporter (ATP-binding protein) YPO1735 [imported] - Yersinia pestis (str
C:Species: Yersinia pestis
C:Date: 02-Nov-2001 #sequence_revision 02-Nov-2001 #text_change 09-Jul-2004
R:Accession: AF0211
C:Parkhill, J.; Wren, B.W.; Thomson, N.R.; Titball, R.W.; Holden, M.T.G.; Prentice, M.B.
deno-Tarraga, A.M.; Chillingworth, T.; Cronin, A.; Davies, R.M.; Davis, P.; Dougan, G.;
il, M.; Rutherford, K.; Simmonds, M.; Skelton, J.; Stevens, K.; Whitehead, S.; Barrall,
Nature 413, 523-527, 2001
A:Title: Genome sequence of Yersinia pestis, the causative agent of plague.
A:Reference number: AB0001; MUID:21470413; PMID:11586360
A:Accession: AF0211
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-572 <KUR>
A:Cross-references: UNIPROT:Q8ZFH4; GB:AL590842; PIDN:CAC90554.1; PID:gl5979763; GSPDB:G
C:Genetics:
A:Gene: YPO1735
C:Superfamily: Escherichia coli ABC transporter mdIA; ATP-binding cassette homology
Query Match 15.0%; Score 91; DB 2; Length 572;
Best Local Similarity 30.9%; Pred.No.7.4;
Matches 38; Conservative 16; Mismatches 41; Indels 28; Gaps 6;

myosin heavy chain [similarity] - slime mold (Dictyostelium discoideum)

KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine; immunological; gene therapy; immunostimulant.

OS Unidentified.

PN US6592876-B1.

PD 15-JUL-2003.

15-SEP-1995; 95US-00529055.

PR 20-APR-1993: 93US-00048896.

PR 06-JUN-1995; 95US-00465746.

PA (UABR-) UAB RES FOUND.

PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;

WPI; 2003-862841/80.

Immunological composition for obtaining expression products used for detecting the presence of *Streptococcus pneumoniae* or its strain, comprises at least two different full length isolated gene encoding pneumococcal surface protein A.

PS Example 6; SEQ ID NO 68; 121pp; English.

The present invention relates to an immunological composition comprising at least 2 different full length isolated genes encoding pneumococcal surface protein A (PspAs) from different groups based on restriction fragment polymorphism analysis. The invention is useful for obtaining expression products by recombinant techniques to detect, determine, isolate or diagnose the presence of *Streptococcus pneumoniae* or its strain. The expression product is useful for preparing antigenic, immunological or vaccine compositions, for eliciting antibodies, an immunological response (other than or additional to antibodies) or a protective response (including antibody or other immunological response by administering compositions to a host). The invention is also useful as vaccines and in gene therapy. The present sequence is Bg7817c pneumococcal surface protein A (PspA) central region. This sequence is used in the exemplification of the invention

Sequence 212 AA;

Query Match	46.2%	Score	280.5;	DB 7;	Length	212;
Best Local Similarity	51.3%;	Pred. No.	6.8e-21;			
Matches 61;	Conservative	18;	Mismatches	29;	Indels	11;
					Gaps	2;

Qy 1 LEDSGLEKVLATLDPGGETPDGLDKEASEDSNIGALPNQVSDLENQVSELDRVTRLP 60

db

28 LEKAGAGLGNLLSTLDPPEGKTODELDKEAAE-----AELNKKVEALPNOVAEELEEEELSKE 83

QY 61 SDLKDTEGNNVG DYVKGGLEKALTDEKVGLNNTPKALDTAPKALDTALNELGPDGDEEE 119

Db 84 DNLKDAETNHVEDYIKEGLEEAATKOAELK-----PKELDAALNELGPDGDEEE 135

Search completed: November 17, 2005, 20:19:44
Job time : 85.5636 secs

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QY      61  SLDKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
      :||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| |
Db      332  DNLKDAETNNVEDYIKEGLEEAIA TKAELEKT-----QKELDAALNELGPDGDEEE 383

RESULT 13
AAW14590
ID  AAW14590 standard; protein; 233 AA.
XX
AC  AAW14590;
XX
DT      17-OCT-2003 (revised)
DT      28-OCT-1997 (first entry)
XX
DE  Streptococcus pneumoniae PspA central region.
XX
KW  PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW  bacteraemia; pneumonia.
XX
OS  Streptococcus pneumoniae; strain Ef5668.
XX
PN  WO9709994-A1.
XX
PD      20-MAR-1997.
XX
PF      16-SEP-1996; 96WO-US014819.
XX
PR      15-SEP-1995; 95US-00529055.
XX
PA  (UABR-) UAB RES FOUND.
XX
PI  Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI  Hollingshead S, Tart R, Brooks-Walter A;
XX
WPI; 1997-202002/18.
XX
ST  Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT  in vaccines for protecting animals against S.pneumoniae infection.
XX
PS  Example 6; Fig 13; 296pp; English.
XX
CC  This sequence shows the central portion, including the C-terminus of the
CC  alpha-helix region and some of the proline-rich region, of pneumococcal
CC  surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see
CC  also AAW14592). Comparison of the N-terminal and central regions
CC  (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains
CC  can be used to divide the strains into several families based on sequence
CC  homologies. PspA polypeptides, or fragments of them, can be used in
CC  vaccines to protect animals against S. pneumoniae infection and hence for
CC  the prevention of diseases such as otitis media, meningitis, bacteraemia
CC  and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC  region and the immediate 5' tip of the coding sequence are likely to be
CC  the critical sequences for predicting PspA cross-reactions and vaccine
CC  composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ  Sequence 233 AA;

Query Match      47.4%; Score 286; DB 2; Length 233;
Best Local Similarity 55.0%; Pred. No. 1.3e-21;
Matches 66; Conservative 15; Mismatches 27; Indels 12; Gaps 3;

QY      1  LEDSGLGLEKVLATLDP-GGETPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRL 59
      ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| |
Db      51  LEDAELEKVLATLDPGEGKTQDELDEKAAE-----AELNKKVEALPNQVALEELSLE 106

QY      60  PSDLKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
      :||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| |
Db      107  EDNLKDAETNNVEDYIKEGLEEAIA TKAELEKT-----QKELDAALNELGPDGDEEE 159

RESULT 14
AAW14588
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```
ID  AAW14588 standard; protein; 212 AA.
XX
AC  AAW14588;
XX
DT      17-OCT-2003 (revised)
DT      28-OCT-1997 (first entry)
XX
DE  Streptococcus pneumoniae PspA central region.
XX
KW  PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW  bacteraemia; pneumonia.
XX
OS  Streptococcus pneumoniae; strain Bg7817.
XX
PN  WO9709994-A1.
XX
PD      20-MAR-1997.
XX
PF      16-SEP-1996; 96WO-US014819.
XX
PR      15-SEP-1995; 95US-00529055.
XX
PA  (UABR-) UAB RES FOUND.
XX
PI  Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI  Hollingshead S, Tart R, Brooks-Walter A;
XX
WPI; 1997-202002/18.
XX
ST  Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT  in vaccines for protecting animals against S.pneumoniae infection.
XX
PS  Example 6; Fig 13; 296pp; English.
XX
CC  This sequence shows the central portion, including the C-terminus of the
CC  alpha-helix region and some of the proline-rich region, of pneumococcal
CC  surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
CC  Comparison of the N-terminal and central regions (AAW14533-57 and
CC  AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC  be used to divide the strains into several families based on sequence
CC  homologies. PspA polypeptides, or fragments of them, can be used in
CC  vaccines to protect animals against S. pneumoniae infection and hence for
CC  the prevention of diseases such as otitis media, meningitis, bacteraemia
CC  and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC  region and the immediate 5' tip of the coding sequence are likely to be
CC  the critical sequences for predicting PspA cross-reactions and vaccine
CC  composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ  Sequence 212 AA;

Query Match      46.2%; Score 280.5; DB 2; Length 212;
Best Local Similarity 51.3%; Pred. No. 6.8e-21;
Matches 61; Conservative 18; Mismatches 29; Indels 11; Gaps 2;

QY      1  LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDREVTRL 60
      ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| |
Db      28  LEKAGAGLGNLLSTLDPGKTDQLDKEAAE-----AELNKKVEALPNQVALEELSLE 83

QY      61  SLDKDTGNNVGDYVKGGLKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEEE 119
      :||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| | ||| |
Db      84  DNLKDAETNNVEDYIKEGLEEAIA TKAELEKT-----PKELDAALNELGPDGDEEE 135

RESULT 15
ABW02622
ID  ABW02622 standard; protein; 212 AA.
XX
AC  ABW02622;
XX
DT      12-FEB-2004 (first entry)
XX
DE  Bg7817c pneumococcal surface protein A (PspA) central region.
XX
```


Best local similarity 55.5%, Freq. NO. 4.1E-22;
Matches 66; Conservative 15; Mismatches 27;
Indels 11; Gaps 2;

[illegible]

DT 12-FEB-2004 (first entry)
XX Ef568c pneumococcal surface protein A (PspA) central region.
XX
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
KW
OS Unidentified.
XX
XX US6592876-B1.
XX
XX 15-JUL-2003.
XX
XX 15-SEP-1995; 95US-00529055.
PF
XX 20-APR-1993; 93US-00048896.
PR
XX 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI WPI; 2003-862841/80.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 70; 121pp; English.
PS
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef568c
CC pneumococcal surface protein A (PspA) central region. This sequence is
XX used in the exemplification of the invention
XX
XX Sequence 232 AA;
Query Match 49.2%; Score 298.5; DB 7; Length 232;
Best Local Similarity 55.5%; Pred. No. 1e-22; 27; Indels 11; Gaps 2;
Matches 66; Conservative 15; Mismatches 27;
Oy 1 LEDSGLGKVLATDPGGTDPGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 51 LEDAELEKVLATDPGGTDPGLDKEAE-----AELNEKVEALQNVAELESELSKLE 106
Oy 61 SLDKDTGNNVDYVKGLEKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 107 DNLKDAETNNVEDYIKGLEEAIAATKAELEKT-----QKELDAALNELGPDGDEE 158
RESULT 7
ADO52055
ID ADO52055 standard; protein; 275 AA.
XX
XX ADO52055;
AC
XX 12-AUG-2004 (first entry)
DT
XX S. pneumoniae strain EF5688 PspA alpha helical domain.
DE
XX Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.

XX Streptococcus pneumoniae.
OS
XX US2004101531-A1.
PN
XX 27-MAY-2004.
PD
XX 15-APR-2003; 2003US-00414532.
PF
XX 16-APR-2002; 2002US-0372710P.
PR
XX (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
XX Curtiss R, Kang HY;
PI WPI; 2004-399655/37.
DR
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
XX Claim 17; SEQ ID NO 1; 94pp; English.
PS
XX The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX
XX Sequence 275 AA;
Query Match 49.2%; Score 298.5; DB 8; Length 275;
Best Local Similarity 55.5%; Pred. No. 1.3e-22;
Matches 66; Conservative 15; Mismatches 27; Indels 11; Gaps 2;
Oy 1 LEDSGLGKVLATDPGGTDPGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 167 LEDAELEKVLATDPGGTDPGLDKEAE-----AELNEKVEALQNVAELESELSKLE 222
Oy 61 SLDKDTGNNVDYVKGLEKALTDEKVLNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 223 DNLKDAETNNVEDYIKGLEEAIAATKAELEKT-----QKELDAALNELGPDGDEE 274
RESULT 8
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX
XX ADK52496;
AC
XX 20-MAY-2004 (first entry)
DT
XX alpha helical region PspA molecule from the Rxl strain.
DE
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
XX Streptococcus pneumoniae.
OS
XX WO2004016231-A2.
PN
XX 26-FEB-2004.
PD
XX 17-FEB-2003; 2003WO-US008199.
PF
XX 15-MAR-2002; 2002US-0365351P.
PR
XX (UABR-) UAB RES FOUND.
PA

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QY 61  SLDKTEGNNVGDYVKGGLKALTDKVGNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 87  SLDKTEGNNVGDYVKGGLKALTDKVGNNTPKALDTAPKALDTALNELGPDGDEE 145

RESULT 4
ABU08487
ID  ABU08487 standard; protein; 8991 AA.
XX  AC
XX  ABU08487;
DT  24-JUN-2003 (first entry)
XX  XX
DE  S. pneumoniae pneumococcal surface protein A (PspA) protein.
KW  Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
KW  alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
KW  antibacterial.
XX  XX
OS  Streptococcus pneumoniae.
XX  XX
FH  Key Location/Qualifiers
FT  Misc-difference 1..8991
FT  /note= "All Xaa residues within this sequence are
FT  unknown"
XX  XX
PN  US6500613-B1.
XX  31-DEC-2002.
XX  XX
PF  16-SEP-1996; 96US-00714741.
XX  XX
PR  15-SEP-1995; 95US-00529055.
XX  XX
PA  (UYAL-) UNIV ALABAMA.
XX  XX
PI  Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI  Hollingshead S, Tart R, Brooks-Walter A;
XX  WPI; 2003-361534/34.
XX  XX
PT  Isolated PspC amino acid sequence used as polymerase chain reaction or
PT  hybridization probe, comprises pneumococcal surface protein having alpha-
PT  helical, proline rich and repeat regions.
XX  XX
PS  Disclosure; Col 145-188; 186pp; English.
XX  XX
CC  The present invention relates to the isolation of Streptococcus
CC  pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
CC  sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-
CC  like protein having alpha-helical, proline rich and repeat regions. The
CC  PspC and PspA proteins may be used in a vaccine to protect against
CC  pneumococcal infections. The polynucleotide sequences encoding PspC and
CC  PspA may be used for the expression of the proteins, and as PCR primers
CC  or hybridisation probes. The present sequence represents S. pneumoniae
CC  PspA protein
XX  XX
SQ  Sequence 8991 AA;

Query Match 100.0%; Score 607; DB 6; Length 8991;
Best Local Similarity 100.0%; Pred. No. 7.7e-53;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1  LEDSGLGLEKVLATDPGGTDPGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 3874 LEDSGLGLEKVLATDPGGTDPGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 3933

QY 61  SLDKTEGNNVGDYVKGGLKALTDKVGNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 3934 SLDKTEGNNVGDYVKGGLKALTDKVGNNTPKALDTAPKALDTALNELGPDGDEE 3992

RESULT 5
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```
ADO15316
ID  ADO15316 standard; protein; 459 AA.
XX  AC
XX  ADO15316;
DT  12-AUG-2004 (first entry)
XX  XX
DE  S_pneumoniae pneumolysin protein encoded by pSA-60 PspA SeqID 18.
KW  pneumococcal infection; capsular protein; pneumolysin; vaccine;
KW  immunostimulant; antibacterial; mutant; mutein.
XX  XX
OS  Streptococcus pneumoniae.
OS  Synthetic.
XX  XX
PN  WO2004043376-A2.
XX  27-MAY-2004.
XX  XX
PF  06-NOV-2003; 2003WO-US035529.
XX  XX
PR  07-NOV-2002; 2002US-0424497P.
XX  XX
PA  (SYNE-) SYNERGY AMERICA INC.
XX  XX
PI  Chen MC, Chiou C, Li Z, Chen D;
XX  WPI; 2004-411623/38.
DR  N-PSDB; ADO15315.
XX  XX
PT  New compositions comprising a polypeptide conjugated to Streptococcus
PT  pneumoniae capsular polysaccharide or non-S. pneumoniae bacterial
PT  polysaccharide, useful for eliciting an immune response against S.
PT  pneumoniae.
XX  XX
PS  Claim 51; SEQ ID NO 18; 69pp; English.
XX  XX
CC  This invention relates to novel proteins and polypeptide conjugates that
CC  can be used to treat and/ or prevent pneumococcal infections.
CC  Specifically, it refers to compositions that preferably contain a
CC  polypeptide conjugated to a Streptococcus pneumoniae (S. pneumoniae)
CC  capsular protein such as the pneumolysin protein that has been modified
CC  to lack the peptide sequence Lys-Val-Glu-Asn-Asp and hence also lack
CC  haemolytic activity. The present invention describes such compositions as
CC  useful for eliciting a cellular or humoral immune response against S.
CC  pneumoniae when administered to a mammal, and further provides antibodies
CC  useful for the development of vaccines to treat and/ or prevent
CC  pneumococcal infection. Accordingly, these compositions are
CC  immunostimulants and exhibit antibacterial activities. This polypeptide
CC  sequence is the protein encoded by the S. pneumoniae pneumolysin pSA-60
CC  PspA expression vector of the invention.
XX  XX
SQ  Sequence 459 AA;

Query Match 71.2%; Score 432; DB 8; Length 459;
Best Local Similarity 77.4%; Pred. No. 2.7e-36;
Matches 89; Conservative 11; Mismatches 15; Indels 0; Gaps 0;

QY 1  LEDSGLGLEKVLATDPGGTDPGLDKEASDSNIGALPNQVSDLENQVSELDREVTRLP 60
Db 345 LEDAELEKVLATIDPEGKTQDELDKEAEDANIEALQNKVADLENKVAELDKVTRLQ 404

QY 61  SLDKDTGNNVGDYVKGGLKALTDKVGNNTPKALDTAPKALDTALNELGPDG 115
Db 405 SLDKDAENNVGDYVKGGLKALTDKVKELNNTQKALDTAQKALDTALNELGPDG 459

RESULT 6
ABW02624
ID  ABW02624 standard; protein; 232 AA.
XX  AC
XX  ABW02624;
```

QY 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 60
Db 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 60
QY 61 SDLKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 61 SDLKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119

RESULT 2
AAW14563
ID AAW14563 standard; protein; 215 AA.
XX
AC AAW14563;

XX 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX Streptococcus pneumoniae PspA central region.
DE PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX Streptococcus pneumoniae; strain ATCC 6303.
OS

XX Key Location/Qualifiers
FH Misc-difference 4
FT /note= "unidentified amino acid"
FT Misc-difference 16
FT /note= "unidentified amino acid"

XX WO9709994-A1.
PN
XX 20-MAR-1997.
PD
XX 16-SEP-1996; 96WO-US014819.
PF
XX 15-SEP-1995; 95US-00529055.
PR
XX (UABR-) UAB RES FOUND.
PA

XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX WPI; 1997-202002/18.
DR
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Example 6; Fig 13; 296pp; English.

XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain ATCC6303.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX Sequence 215 AA;

Query Match 100.0%; Score 607; DB 2; Length 215;
Best Local Similarity 100.0%; Pred. No. 4.8e-55;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 60
Db 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 60

Db 27 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 86
QY 61 SDLKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 119
Db 87 SDLKDTGNNVGDYVKGGLKALTDKVKGLNNTPKALDTAPKALDTALNELGPDGDEE 145

RESULT 3
ABW02597
ID ABW02597 standard; protein; 215 AA.
XX
AC ABW02597;

XX 12-FEB-2004 (first entry)
DT
XX Atcc6303c pneumococcal surface protein A (PspA) central region.
DE
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX

OS Unidentified.
XX Key Location/Qualifiers
FH Misc-difference 1..215
FT /note= "Xaa = Unknown amino acid"

XX US6592876-B1.
PN
XX 15-JUL-2003.
PD

XX 15-SEP-1995; 95US-00529055.
PF

XX 20-APR-1993; 93US-00048896.
PR

XX 06-JUN-1995; 95US-00465746.
PR

XX (UABR-) UAB RES FOUND.
PA

XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI

XX WPI; 2003-862841/80.
DR

XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.

XX Example 6; SEQ ID NO 43; 121pp; English.

XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Atcc6303c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention

XX Sequence 215 AA;

Query Match 100.0%; Score 607; DB 7; Length 215;

Best Local Similarity 100.0%; Pred. No. 4.8e-55;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 60
Db 27 LEDSGLGLEKVLATLDPGGETPDGLDKEASDSNIGALPNQVSDLENQVSELDRVTRLP 86

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 84.5636 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-27

Perfect score: 607

Sequence: 1 LEDSGLEKVLATLDPGGE.....APKALDTALNELPGDDEE 119

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

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- 2: Geneseqp1990s.*
- 3: Geneseqp2000s.*
- 4: Geneseqp2001s.*
- 5: Geneseqp2002s.*
- 6: Geneseqp2003as.*
- 7: Geneseqp2003bs.*
- 8: Geneseqp2004s.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	607	100.0	119	2	AAW46291 Pneumoc
2	607	100.0	215	2	AAW14563 Streptoco
3	607	100.0	215	7	ABW02597 Atcc6303c
4	607	100.0	8991	6	ABU08487 S. pneumo
5	432	71.2	459	8	ADO15316 S. pneumo
6	298.5	49.2	232	7	ABW02624 Ef5668c p
7	298.5	49.2	275	8	ADO52055 S. pneumo
8	298.5	49.2	369	8	ADK52496 alpha hel
9	298.5	49.2	458	2	AAW14592 Streptoco
10	298.5	49.2	458	7	ABW02626 Ef5668 pn
11	298.5	49.2	653	8	ADK52495 PspA mole
12	298.5	49.2	653	8	ADO52080 S. pneumo
13	288	47.4	233	2	AAW14590 Streptoco
14	280.5	46.2	212	7	ABW14588 Streptoco
15	280.5	46.2	212	7	ABW02622 Bg7817c p
16	279.5	46.0	211	7	ABW02621 Bg11703c
17	279.5	46.0	238	2	AAW14587 Streptoco
18	228.5	37.6	185	7	ABW02623 Bg7561c p
19	205	33.8	184	2	AAW14589 Streptoco
20	200.5	33.0	233	7	ABW02606 Bf1019c p
21	199	32.8	230	8	ADO52086 S. pneumo
22	199	32.8	230	8	ADR04319 Streptoco
23	199	32.8	290	8	ADO52119 pYA3637 b
24	199	32.8	298	8	ADO52127 pYA3637 b
25	199	32.8	487	8	ADR04321 Streptoco

26	199	32.8	489	8	ADO52088 Streptoco
27	199	32.8	524	8	ADO52082 E. coli B
28	199	32.8	627	8	ADO52129 E. coli B
29	196.5	32.4	213	7	ABW02601 Bg8090c p
30	193.5	31.9	233	2	AAW14572 Streptoco
31	190.5	31.4	197	7	ABW02598 Ac122c pn
32	190.5	31.4	416	8	ADK52498 alpha hel
33	190.5	31.4	526	8	ADK52497 PspA mole
34	190.5	31.4	744	6	ABU00449 S. pneumo
35	190.5	31.4	744	8	ADM92054 S. pneumo
36	190.5	31.4	745	3	AAW14562 Streptoco
37	189.5	31.2	641	2	AAW61217 Streptoco
38	189.5	31.2	641	5	ABP54636 S. pneumo
39	189.5	31.2	641	7	ADC45241 S. pneumo
40	185.5	30.6	213	2	AAW14567 Streptoco
41	179	29.5	196	2	AAW14564 Streptoco
42	114.5	18.9	1231	6	ABU08490 Fragment
43	114	18.8	289	2	AAW62276 Streptoco
44	114	18.8	289	2	AAW11840 Streptoco
45	114	18.8	289	2	AAW87910 Protein S

ALIGNMENTS

RESULT 1

AAW46291

ID AAW46291 standard; protein; 119 AA.

AC AAW46291;

DT 29-JUL-1998 (first entry)

DE Pneumococcal surface protein As (PspAs) from clade 5 strain ATCC6303.

XX Streptococcus pneumoniae; vaccine; pneumococcal surface protein As;

KW infection; protection; PspAs.

XX Streptococcus pneumoniae.

XX WO9811915-A1.

XX 26-MAR-1998.

XX 22-SEP-1997; 9TWO-US016761.

XX 20-SEP-1996; 96US-00710749.

XX (CONN-) CONNAUGHT LAB LTD.

XX Becker RS, Briles DE, Hollingshead S;

XX WPI; 1998-217031/19.

XX New vaccines for protection against pneumococcal infection - comprising at least 2 pneumococcal surface protein As, each selected from a different family.

XX Example 3; Fig 7; 57pp; English.

XX This is the sequence of a pneumococcal surface protein As (PspAs) from strain ATCC6303, a representative strain of clade 5. This can be used in the preparation of a vaccine composition comprising at least 2 PspAs, each of which is selected from a different family. The vaccines can provide for broad range protection against infection by different Streptococcus pneumoniae strains

XX Sequence 119 AA;

Query Match 100.0%; Score 607; DB 2; Length 119;

Best Local Similarity 100.0%; Pred. No. 2.2e-55;

Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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US-10-299-636-85
Query Match          76.7%; Score 414; DB 15; Length 232;
Best Local Similarity 79.6%; Pred. No. 1.2e-28;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKTDQDELKGAABAEALNKKVEALPNPVXEELEELSPEDNLK 60
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 51 LEDAELEKVLATLDPEGKTQDELKGAABAEALNKKVEALQNVXAELEELSKLEDNLK 110
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||

Qy 61 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 108
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 111 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 158

RESULT 10
US-10-414-532-1
; Sequence 1, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 1
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-1

Query Match          76.7%; Score 414; DB 16; Length 275;
Best Local Similarity 79.6%; Pred. No. 1.5e-28;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKTDQDELKGAABAEALNKKVEALPNPVXEELEELSPEDNLK 60
Db 167 LEDAELEKVLATLDPEGKTQDELKGAABAEALNKKVEALQNVXAELEELSKLEDNLK 226

Qy 61 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 108
Db 227 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 274

RESULT 11
US-10-299-636-88
; Sequence 88, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1

US-10-299-636-88
; SEQ ID NO 88
; LENGTH: 458
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-88

Query Match          76.7%; Score 414; DB 15; Length 458;
Best Local Similarity 79.6%; Pred. No. 2.7e-28;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKTDQDELKGAABAEALNKKVEALPNPVXEELEELSPEDNLK 60
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 276 LEDAELEKVLATLDPEGKTQDELKGAABAEALNKKVEALQNVXAELEELSKLEDNLK 335
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||

Qy 61 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 108
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 336 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 383

RESULT 12
US-10-414-532-26
; Sequence 26, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 26
; LENGTH: 653
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-26

Query Match          76.7%; Score 414; DB 16; Length 653;
Best Local Similarity 79.6%; Pred. No. 4.1e-28;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKTDQDELKGAABAEALNKKVEALPNPVXEELEELSPEDNLK 60
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 276 LEDAELEKVLATLDPEGKTQDELKGAABAEALNKKVEALQNVXAELEELSKLEDNLK 335
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||

Qy 61 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 108
    ||| ||| :||| :||| :||| :||| :||| :||| :||| :||| :|||
Db 336 DAETHNVHVDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGGEEE 383

RESULT 13
US-10-702-305A-18
; Sequence 18, Application US/10702305A
; Publication No. US20040213803A1
; GENERAL INFORMATION:
; APPLICANT: Michael C. Chen
; APPLICANT: Chuang-Jiun Chiou
; APPLICANT: Zhongming Li
; APPLICANT: Dong-Sheng Chen
; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING OR
; TITLE OF INVENTION: PREVENTING PNEUMOCOCCAL INFECTION
; FILE REFERENCE: 12844-002001
; CURRENT APPLICATION NUMBER: US/10/702,305A
; CURRENT FILING DATE: 2003-11-06
; PRIOR APPLICATION NUMBER: US 60/424,497
; PRIOR FILING DATE: 2002-11-07
; NUMBER OF SEQ ID NOS: 26
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 18

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Db 61 DAETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108

RESULT 2

US-10-299-636-84

; Sequence 84, Application US/10299636

; Publication No. US20040077847A1

; GENERAL INFORMATION:

; APPLICANT: Briles, David E

; APPLICANT: McDaniel, Larry S

; APPLICANT: Swiatlo, Edwin

; APPLICANT: Yother, Janet

; APPLICANT: Crain, Marilyn J

; APPLICANT: Hollingshead, Susan

; APPLICANT: Tart, Rebecca

; APPLICANT: Brooks-Walter, Alexis

; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF

; FILE REFERENCE: 57909/361

; CURRENT APPLICATION NUMBER: US/10/299,636

; CURRENT FILING DATE: 2002-11-19

; PRIOR APPLICATION NUMBER: 08/714,741

; PRIOR FILING DATE: 1996-09-16

; PRIOR APPLICATION NUMBER: 08/529,055

; PRIOR FILING DATE: 1995-09-15

; NUMBER OF SEQ ID NOS: 111

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 84

; LENGTH: 185

; TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

; NAME/KEY: UNSURE

; LOCATION: (45)

; OTHER INFORMATION: Xaa at position 45 is unknown

US-10-299-636-84

Query Match 94.8%; Score 512; DB 15; Length 185;

Best Local Similarity 95.3%; Pred. No. 1.9e-37;

Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 2 EKAEELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLKD 61

Db 1 KQQVNLNLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLKD 60

Qy 62 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108

Db 61 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 107

RESULT 3

US-10-674-755-23

; Sequence 23, Application US/10674755

; Publication No. US20040067237A1

; GENERAL INFORMATION:

; APPLICANT: BECKER et al.

; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS

; FILE REFERENCE: 454312-2471

; CURRENT APPLICATION NUMBER: US/10/674,755

; CURRENT FILING DATE: 2003-09-30

; PRIOR APPLICATION NUMBER: US/09/147,875A

; PRIOR FILING DATE: 1999-05-24

; NUMBER OF SEQ ID NOS: 28

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 23

; LENGTH: 108

; TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

US-10-674-755-23

Query Match 85.4%; Score 461; DB 15; Length 108;

Best Local Similarity 88.0%; Pred. No. 3.3e-33;

Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 23 EKAEELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLK 60

Db 1 KQQVNLNLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLK 60

Qy 62 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108

Db 61 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 107

Qy 1 LEKAAELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLK 60

Db 1 LEKAAELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSKLEDNLK 60

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108

Db 61 DAETNNVEDYIKGLEEAIATKQAELEETPRELDAALNELGPDGDEE 108

RESULT 4

US-10-299-636-82

; Sequence 82, Application US/10299636

; Publication No. US20040077847A1

; GENERAL INFORMATION:

; APPLICANT: Briles, David E

; APPLICANT: McDaniel, Larry S

; APPLICANT: Swiatlo, Edwin

; APPLICANT: Yother, Janet

; APPLICANT: Crain, Marilyn J

; APPLICANT: Hollingshead, Susan

; APPLICANT: Tart, Rebecca

; APPLICANT: Brooks-Walter, Alexis

; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF

; FILE REFERENCE: 57909/361

; CURRENT APPLICATION NUMBER: US/10/299,636

; CURRENT FILING DATE: 2002-11-19

; PRIOR APPLICATION NUMBER: 08/714,741

; PRIOR FILING DATE: 1996-09-16

; PRIOR APPLICATION NUMBER: 08/529,055

; PRIOR FILING DATE: 1995-09-15

; NUMBER OF SEQ ID NOS: 111

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 82

; LENGTH: 211

; TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

US-10-299-636-82

Query Match 85.4%; Score 461; DB 15; Length 211;

Best Local Similarity 88.0%; Pred. No. 7.4e-33;

Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSPEDNLK 60

Db 25 LEKAAELENLLSTLDPGGKTQDELKGAAEALNKKVEALPNVXELEELSKLEDNLK 84

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108

Db 85 DAETNNVEDYIKGLEEAIATKQAELEETPRELDAALNELGPDGDEE 132

RESULT 5

US-10-674-755-24

; Sequence 24, Application US/10674755

; Publication No. US20040067237A1

; GENERAL INFORMATION:

; APPLICANT: BECKER et al.

; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS

; FILE REFERENCE: 454312-2471

; CURRENT APPLICATION NUMBER: US/10/674,755

; CURRENT FILING DATE: 2003-09-30

; PRIOR APPLICATION NUMBER: US/09/147,875A

; PRIOR FILING DATE: 1999-05-24

; NUMBER OF SEQ ID NOS: 28

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 24

; LENGTH: 108

; TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

US-10-674-755-24

Query Match 84.1%; Score 454; DB 15; Length 108;

Best Local Similarity 87.0%; Pred. No. 1.4e-32;

GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 71.832 Seconds
(without alignments)
629.082 Million cell updates/sec

Title: US-10-674-755-26
Perfect score: 540
Sequence: 1 LEKAELENLLTLDPGK.....TPQEVDAALNDLVPDGGEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1867879 seqs, 418409474 residues

Total number of hits satisfying chosen parameters: 1867879

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA:*

- 1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep.*
- 2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep.*
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- 13: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep.*
- 14: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep.*
- 15: /cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.pep.*
- 16: /cgn2_6/ptodata/1/pubpaa/US10D_PUBCOMB.pep.*
- 17: /cgn2_6/ptodata/1/pubpaa/US10E_PUBCOMB.pep.*
- 18: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep.*
- 19: /cgn2_6/ptodata/1/pubpaa/US11A_PUBCOMB.pep.*
- 20: /cgn2_6/ptodata/1/pubpaa/US11_NEW_PUB.pep.*
- 21: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep.*
- 22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	538	99.6	108	15	US-10-674-755-26
2	512	94.8	185	15	US-10-299-636-84
3	461	85.4	108	15	US-10-674-755-23
4	461	85.4	211	15	US-10-299-636-82
5	454	84.1	108	15	US-10-674-755-24
6	447	82.8	212	15	US-10-299-636-83
7	439	81.3	106	15	US-10-674-755-22
8	414	76.7	108	15	US-10-674-755-25
9	414	76.7	232	15	US-10-299-636-85
10	414	76.7	275	16	US-10-414-532-1
11	414	76.7	458	15	US-10-299-636-88
					Sequence 26, Appl
					Sequence 84, Appl
					Sequence 23, Appl
					Sequence 82, Appl
					Sequence 24, Appl
					Sequence 83, Appl
					Sequence 22, Appl
					Sequence 25, Appl
					Sequence 85, Appl
					Sequence 1, Appl
					Sequence 88, Appl

12	414	76.7	653	16	US-10-414-532-26	Sequence 26, Appl
13	281	52.0	459	16	US-10-702-305A-18	Sequence 18, Appl
14	270	50.0	213	15	US-10-299-636-62	Sequence 62, Appl
15	266	49.3	104	15	US-10-674-755-21	Sequence 21, Appl
16	263	48.7	104	15	US-10-674-755-20	Sequence 20, Appl
17	258	47.8	744	10	US-09-789-787-184	Sequence 184, Appl
18	258	47.8	744	17	US-10-472-928-32	Sequence 32, Appl
19	257	47.6	641	9	US-09-765-272-160	Sequence 160, Appl
20	257	47.6	641	20	US-11-106-649-160	Sequence 160, Appl
21	254	47.0	197	15	US-10-299-636-59	Sequence 59, Appl
22	245	45.4	487	16	US-10-414-532-34	Sequence 34, Appl
23	245	45.4	487	16	US-10-414-532-21	Sequence 21, Appl
24	245	45.4	524	16	US-10-414-532-28	Sequence 28, Appl
25	244	45.2	233	15	US-10-299-636-67	Sequence 67, Appl
26	243	45.0	102	15	US-10-674-755-18	Sequence 18, Appl
27	238	44.1	230	16	US-10-414-532-32	Sequence 32, Appl
28	238	44.1	230	16	US-10-414-533-19	Sequence 19, Appl
29	238	44.1	290	16	US-10-414-532-65	Sequence 65, Appl
30	231.5	42.9	119	15	US-10-674-755-27	Sequence 27, Appl
31	231.5	42.9	215	15	US-10-299-636-58	Sequence 58, Appl
32	186	34.4	80	15	US-10-674-755-19	Sequence 19, Appl
33	167	30.9	204	15	US-10-299-636-66	Sequence 66, Appl
34	167	30.9	354	15	US-10-299-636-105	Sequence 105, Appl
35	167	30.9	588	15	US-10-299-636-96	Sequence 96, Appl
36	167	30.9	619	10	US-09-882-774-1	Sequence 1, Appl
37	167	30.9	619	15	US-10-282-122A-73702	Sequence 73702, A
38	167	30.9	619	16	US-10-414-532-72	Sequence 72, Appl
39	164	30.4	99	15	US-10-674-755-11	Sequence 11, Appl
40	160.5	29.7	100	15	US-10-674-755-12	Sequence 12, Appl
41	159	29.4	198	15	US-10-299-636-76	Sequence 76, Appl
42	143	26.5	195	15	US-10-299-636-86	Sequence 86, Appl
43	139	25.7	99	15	US-10-674-755-13	Sequence 13, Appl
44	139	25.7	141	14	US-10-254-995-2	Sequence 2, Appl
45	139	25.7	336	15	US-10-299-636-103	Sequence 103, Appl

ALIGNMENTS

RESULT 1
US-10-674-755-26
; Sequence 26, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patentin Ver. 2.1
; SEQ ID NO 26
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (1)..(108)
; OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
US-10-674-755-26

Query Match	99.6%	Score 538	DB 15	Length 108
Best Local Similarity	100.0%	Pred. No. 5.1e-40		
Matches 108	Conservative 0	Mismatches 0	Indels 0	Gaps 0
Qy	1	LEKAELENLLTLDPGKTDQDELKGAAEALNKKVEALPNPVXELERELSPEDNLK	60	
Db	1	LEKAELENLLTLDPGKTDQDELKGAAEALNKKVEALPNPVXELERELSPEDNLK	60	
Qy	61	DAETHNVEDYIKEGLEAEIATKQAELEETPQEVDAALNDLVPDGGEE	108	

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; MOLECULE TYPE: amino acid
US-08-710-749-24

Query Match
Best Local Similarity 76.7%; Score 414; DB 2; Length 108;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGGKTQDELKGAAEALNKVKEALPNPVXEELEELSPEDNLK 60
DB 1 LEDAELEKVLATLDPEGKTQDELKGAAEALNKVKEALQNVAELEELSKLEDNLK 60

QY 61 DAETHNVEDYIKEGLEEAIAATKQAELETPQEVDAALNDLVPDGGEEE 108
DB 61 DAETNNVEDYIKEGLEEAIAATKQAELETKQKELDAALNELGPDGDEEE 108

RESULT 14
US-09-147-875A-25
; Sequence 25, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT.
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-25

Query Match
Best Local Similarity 76.7%; Score 414; DB 4; Length 108;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGGKTQDELKGAAEALNKVKEALPNPVXEELEELSPEDNLK 60
DB 1 LEDAELEKVLATLDPEGKTQDELKGAAEALNKVKEALQNVAELEELSKLEDNLK 60

QY 61 DAETHNVEDYIKEGLEEAIAATKQAELETPQEVDAALNDLVPDGGEEE 108
DB 61 DAETNNVEDYIKEGLEEAIAATKQAELETKQKELDAALNELGPDGDEEE 108

RESULT 15
US-08-529-055-70
; Sequence 70, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESS: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
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; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 70:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 232 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-70

Query Match
Best Local Similarity 76.7%; Score 414; DB 4; Length 232;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGGKTQDELKGAAEALNKVKEALPNPVXEELEELSPEDNLK 60
DB 51 LEDAELEKVLATLDPEGKTQDELKGAAEALNKVKEALQNVAELEELSKLEDNLK 110

QY 61 DAETHNVEDYIKEGLEEAIAATKQAELETPQEVDAALNDLVPDGGEEE 108
DB 111 DAETNNVEDYIKEGLEEAIAATKQAELETKQKELDAALNELGPDGDEEE 158

Search completed: November 17, 2005, 19:32:23
Job time : 20.9185 secs
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[illegible]

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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/710,749
FILING DATE: 20-SEP-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2074
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 24:
SEQUENCE CHARACTERISTICS:
LENGTH: 108 amino acids
TYPE: amino acid
STRANDEDNESS: n/a
TOPOLOGY: linear

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; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-67

Query Match      85.4%; Score 461; DB 4; Length 211;
Best Local Similarity 88.0%; Pred. No. 2.6e-39; Mismatches 8; Indels 0; Gaps 0;
Matches 95; Conservative

Qy 1 LEKAEAELENLLSTLDPGKTQDELKGAAEAELENKKVEALPNPVKXEEELSPEDNLK 60
Db 1 LEKAEAELENLLSTLDPGKTQDELKGAAEAELENKKVEALPNPVKXEEELSKLEDNLK 84
Qy 61 DAETHVVEDYIKGLEEAEIATKQAELEETPOEVDAALNDLVPDGGEEE 108
Db 85 DAETHVVEDYIKGLEEAEIATKQAELEETPKELDAALNELGPDGDEEE 132

RESULT 8
US-09-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-24

Query Match      84.1%; Score 454; DB 4; Length 108;
Best Local Similarity 87.0%; Pred. No. 5.8e-39; Mismatches 10; Indels 0; Gaps 0;
Matches 94; Conservative

Qy 1 LEKAEAELENLLSTLDPGKTQDELKGAAEAELENKKVEALPNPVKXEEELSPEDNLK 60
Db 1 LEKAGAGLENNLLSTLDPGKTQDELKGAAEAELENKKVEALPNQVAEEELSKLEDNLK 60
Qy 61 DAETHVVEDYIKGLEEAEIATKQAELEETPOEVDAALNDLVPDGGEEE 108
Db 61 DAETHVVEDYIKGLEEAEIATKQAELEETPKELDAALNELGPDGDEEE 108

RESULT 9
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22

Query Match      82.8%; Score 447; DB 2; Length 108;
Best Local Similarity 86.1%; Pred. No. 3e-38; Mismatches 11; Indels 0; Gaps 0;
Matches 93; Conservative

Qy 1 LEKAEAELENLLSTLDPGKTQDELKGAAEAELENKKVEALPNPVKXEEELSPEDNLK 60
Db 1 LEKAGAGLENNLLSTLDPGKTQDELKGAAEAELENKKVEALPNQVSEELSKLEDNLK 60
Qy 61 DAETHVVEDYIKGLEEAEIATKQAELEETPOEVDAALNDLVPDGGEEE 108
Db 61 DAETHVVEDYIKGLEEAEIATKQAELEETPKELDAALNELGPDGDEEE 108

RESULT 10
US-08-710-749-23
; Sequence 23, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22
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; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-714-741-32

Query Match          94.8%; Score 512; DB 4; Length 8991;
Best Local Similarity 95.3%; Pred. No. 2e-42;
Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 2 EKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 61
: : |||||
Db 8380 KKQVNLNLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 8439

Qy 62 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108
|||||
Db 8440 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 8486

RESULT 5
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-710-749-26

Query Match          85.4%; Score 461; DB 2; Length 108;
Best Local Similarity 88.0%; Pred. No. 1.1e-39;
Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 60
Db 1 LEKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNQVSELEELSKLEDNLK 60

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108
|||||
Db 61 DAETNNVEDYIKGLEEAIATKQAELEETPKELDAALNELGPDGDEE 108

; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-714-741-32

Query Match          94.8%; Score 512; DB 4; Length 8991;
Best Local Similarity 95.3%; Pred. No. 2e-42;
Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 2 EKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 61
: : |||||
Db 8380 KKQVNLNLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 8439

Qy 62 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108
|||||
Db 8440 AETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 8486

RESULT 5
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-710-749-26

Query Match          85.4%; Score 461; DB 2; Length 108;
Best Local Similarity 88.0%; Pred. No. 1.1e-39;
Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 60
Db 1 LEKAAELENLLSTLDPGGKTQDELDKGAAEALNKKVEALPNQVSELEELSKLEDNLK 60

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEETPOEVDAAALNDLVPDGGEE 108
|||||
Db 61 DAETNNVEDYIKGLEEAIATKQAELEETPKELDAALNELGPDGDEE 108

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; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 69:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 185 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-69

Query Match          94.8%; Score 512; DB 4; Length 185;
Best Local Similarity 95.3%; Pred. NO. 1.4e-44;
Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY      2 EKAAELENLLSLTLDPGKTKODELDKGAEEAELNKKVEALPNPVKLEEEELSPPEDNLKD 61
Db      1 KQKNVLENLLSLTLDPGKTKODELDKGAEEAELNKKVEALPNPVKLEEEELSPPEDNLKD 60

QY      62 AETNHVEDYIKEGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEEE 108
Db      61 AETNHVEDYIKEGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEEE 107

RESULT 4
US-08-714-741-32
; Sequence 32, Application US/08714741
; Patent No. 6500613
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS THEREOF,
; TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM, AND USES OF SUCH GENES,
; TITLE OF INVENTION: PORTIONS AND PRODUCTS
; NUMBER OF SEQUENCES: 47
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: U.S.
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/714,741
; FILING DATE: 16-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single

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Result No.	Query			DB	ID	Description
	Score	Match	Length			
1	538	99.6	108	2	US-08-710-749-25	Sequence 25, Appl
2	538	99.6	108	4	US-09-147-875A-26	Sequence 26, Appl
3	512	94.8	185	4	US-08-529-055-69	Sequence 69, Appl
4	512	94.8	8991	4	US-08-714-741-32	Sequence 32, Appl
5	461	85.4	108	2	US-08-710-749-26	Sequence 26, Appl
6	461	85.4	108	4	US-09-147-875A-23	Sequence 23, Appl
7	461	85.4	211	4	US-08-529-055-67	Sequence 67, Appl
8	454	84.1	108	4	US-09-147-875A-24	Sequence 24, Appl
9	447	82.8	108	2	US-08-710-749-22	Sequence 22, Appl
10	447	82.8	108	2	US-08-710-749-23	Sequence 23, Appl
11	447	82.8	212	4	US-08-529-055-68	Sequence 68, Appl
12	439	81.3	106	4	US-09-147-875A-22	Sequence 22, Appl
13	414	76.7	108	2	US-08-710-749-24	Sequence 24, Appl
14	414	76.7	108	4	US-09-147-875A-25	Sequence 25, Appl
15	414	76.7	232	4	US-08-529-055-70	Sequence 70, Appl
16	414	76.7	458	4	US-08-529-055-73	Sequence 73, Appl
17	274	50.7	104	2	US-08-710-749-20	Sequence 20, Appl
18	270	50.0	213	4	US-08-529-055-47	Sequence 47, Appl
19	266	49.3	104	4	US-09-147-875A-21	Sequence 21, Appl
20	263	48.7	104	2	US-08-710-749-19	Sequence 19, Appl
21	263	48.7	104	4	US-09-147-875A-20	Sequence 20, Appl
22	257	47.6	641	3	US-08-961-083-160	Sequence 160, Appl
23	257	47.6	641	4	US-09-536-784-160	Sequence 160, Appl
24	254	47.0	197	4	US-08-529-055-44	Sequence 44, Appl
25	243	45.2	233	4	US-08-529-055-52	Sequence 52, Appl
26	243	45.0	102	2	US-08-710-749-21	Sequence 21, Appl
27	243	45.0	102	4	US-09-147-875A-18	Sequence 18, Appl

[illegible]

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OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RC SEQUENCE FROM N.A.
RP STRAIN=SP222;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254255; AAF68090.1; -.
FT NON_TER 1
FT NON_TER 257
SQ SEQUENCE 257 AA; 28241 MW; 8470B68C949A133D CRC64;

Query Match 57.5%; Score 310.5; DB 2; Length 257;
Best Local Similarity 58.0%; Pred. No. 4.1e-14;
Matches 69; Conservative 14; Mismatches 25; Indels 11; Gaps 2;

QY 1 LEKAEAELENLLSTLDPGGKTQDELKGAEE-----AELNKKVEALPNPVXLELESPPE 56
DQ 51 LEKAEAELENLLSTLDPGGKTQDELKGAEEADANIEALQNKVADLENKVAELEKVEVRLQ 110
QY 57 DNLDKAETNHVEDYIKEGLEEAATKQAELEET-----POEVDAAALNDLVPDGGEE 108
DQ 111 SLDKDAEENNVEDYIKEGLEKALTDKKVELNNTQKALDTAQAALDNLNGLPGDDEE 169

RESULT 10
Q9LAX6 PRELIMINARY; PRT; 461 AA.
ID Q9LAX6
AC Q9LAX6;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC6303;
RX MEDLINE=20448953; PubMed=10992499;
RA DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
RT in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071820; AAF27715.1; -.
FT NON_TER 461
FT NON_TER 461
SQ SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;

Query Match 54.7%; Score 295.5; DB 2; Length 461;
Best Local Similarity 54.6%; Pred. No. 8.6e-13;
Matches 65; Conservative 16; Mismatches 27; Indels 11; Gaps 2;

QY 1 LEKAEAELENLLSTLDPGGKTQDELKGAEE-----AELNKKVEALPNPVXLELESPPE 56
DQ 273 LEKAEAELENLLSTLDPGGKTQDELKGAEEADANIEALQNKVADLENKVAELEKVEVRLQ 332
QY 57 DNLDKAETNHVEDYIKEGLEEAATKQAELEET-----POEVDAAALNDLVPDGGEE 108
DQ 333 SLDKDAEENNVEDYIKEGLEKALTDKKVELNNTQKALDTAQAALDNLNGLPGDDEE 391

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RESULT 11
Q9LS95 PRELIMINARY; PRT; 256 AA.
ID Q9LS95
AC Q9LS95;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254254; AAF68089.1; -.
FT NON_TER 1
FT NON_TER 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match 53.2%; Score 287.5; DB 2; Length 256;
Best Local Similarity 53.8%; Pred. No. 1.7e-12;
Matches 64; Conservative 16; Mismatches 28; Indels 11; Gaps 2;

QY 1 LEKAEAELENLLSTLDPGGKTQDELKGAEE-----AELNKKVEALPNPVXLELESPPE 56
DQ 52 LEKAEAELENLLSTLDPGGKTQDELKGAEEADANIEALQNKVADLENKVAELEKVEVRLQ 111
QY 57 DNLDKAETNHVEDYIKEGLEEAATKQAELEET-----POEVDAAALNDLVPDGGEE 108
DQ 112 SLDKDAEENNVEDYIKEGLEKALTDKKVELNNTQKALDTAQAALDNLNGLPGDDEE 170

RESULT 12
Q9KGS0 PRELIMINARY; PRT; 227 AA.
ID Q9KGS0
AC Q9KGS0;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RA Beall B.W.;
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF288751; AAF91495.1; -.

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QY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALPNPVXEELEELSPEDNLK 60
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALQNVQAELEELSKLEDNLK 60
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 61 DAETNHVEDYIKEGLEEAATKQAELEETPOEVDAALNDLVPDGGEE 107
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 107
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 6
Q8GNT0
ID Q8GNT0 PRELIMINARY; PRT; 213 AA.
AC Q8GNT0;
RC STRAIN=128;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
LA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
RT Italian patients.";
RL J. Clin. Microbiol. 40:3660-3665(2002).
DR EMBL; AF490268; AAN37736.1; -.
FT NON_TER 1
FT NON_TER 213
FT NON_TER 213
SQ SEQUENCE 213 AA; 23490 MW; 23B4428409526EAB CRC64;

Query Match 77.4%; Score 418; DB 2; Length 213;
Best Local Similarity 81.5%; Pred. No. 1.1e-21;
Matches 88; Conservative 6; Mismatches 14; Indels 0; Gaps 0;

QY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALPNPVXEELEELSPEDNLK 60
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 26 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALQNVQAELEELSKLEDNLK 85
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 61 DAETNHVEDYIKEGLEEAATKQAELEETPOEVDAALNDLVPDGGEE 108
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 86 VAETNNVEDYIKKGLAEATKQAELEKTQKALDALTALNELGPDGDEE 133
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 7
Q34097
ID Q34097 PRELIMINARY; PRT; 653 AA.
AC Q34097;
RC STRAIN=EF5668;
RX MEDLINE=98427139; PubMed=9746574;
RA McDaniel L.S., McDaniel D.O., Hollingshead S.K., Briles D.E.;
RT "Comparison of the PspA sequence from Streptococcus pneumoniae EF5668
RT to the previously identified PspA sequence from strain Rx1 and ability
RT of PspA from EF5668 to elicit protection against pneumococci of
RT different capsular types.";
RL Infect. Immun. 66:4748-4754(1998).

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DR EMBL; U09711; AAC2252.1; -.
DR HSP; P06653; IHCK.
DR InterPro; IPR002479; CW binding.
DR InterPro; IPR002345; Lipocalin.
DR InterPro; IPR009053; Prefoldin.
DR Pfam; PF01473; CW_binding_1; 9.
DR PROSITE; PS00213; LIPOCALIN; UNKNOWN_1.
SQ SEQUENCE 653 AA; 73058 MW; CF147A96125120FA CRC64;

Query Match 76.7%; Score 414; DB 2; Length 653;
Best Local Similarity 79.6%; Pred. No. 6.9e-21;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALPNPVXEELEELSPEDNLK 60
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 276 LEDAELELEKVLATLDPGKQTQDELKGAAEALNKKVEALQNVQAELEELSKLEDNLK 335
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 61 DAETNHVEDYIKEGLEEAATKQAELEETPOEVDAALNDLVPDGGEE 108
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 336 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 383
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 8
Q8GNT0
ID Q8GNT0 PRELIMINARY; PRT; 211 AA.
AC Q8GNT0;
RC STRAIN=SP95;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
LA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
RT Italian patients.";
RL J. Clin. Microbiol. 40:3660-3665(2002).
DR EMBL; AF490265; AAN37733.1; -.
FT NON_TER 1
FT NON_TER 211
FT NON_TER 211
SQ SEQUENCE 211 AA; 23207 MW; 096BFBE0B8CD6483 CRC64;

Query Match 57.5%; Score 310.5; DB 2; Length 211;
Best Local Similarity 58.0%; Pred. No. 3.4e-14;
Matches 69; Conservative 14; Mismatches 25; Indels 11; Gaps 2;

QY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALPNPVXEELEELSPPE 56
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 5 LEKAEAELENLLSTLDPGKQTQDELKGAAEALNKKVEALQNVQAELEELSKLEDNLK 64
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 57 DNLKDAETNHVEDYIKEGLEEAATKQAELEET-----POEVDAALNDLVPDGGEE 108
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 65 SDLKDAEENNVYKGLAEATKKALEKTQKALDALTALNELGPDGDEE 123
    |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 9
Q9L594
ID Q9L594 PRELIMINARY; PRT; 257 AA.
AC Q9L594;
RC STRAIN=EF5668;
RX MEDLINE=98427139; PubMed=9746574;
RA McDaniel L.S., McDaniel D.O., Hollingshead S.K., Briles D.E.;
RT "Comparison of the PspA sequence from Streptococcus pneumoniae EF5668
RT to the previously identified PspA sequence from strain Rx1 and ability
RT of PspA from EF5668 to elicit protection against pneumococci of
RT different capsular types.";
RL Infect. Immun. 66:4748-4754(1998).

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RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG7817;
RX MEDLINE=20448953; PubMed=10992499;
RA DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071826; AAF27719.1; -.
DR InterPro; IPR000533; Tropomyosin.
DR PRINTS; PR00194; TROPOMYSIN.
FT NON_TER 479 479
SQ SEQUENCE 479 AA; 53257 MW; B9C0D2CA15DE3654 CRC64;

Query Match 82.4%; Score 445; DB 2; Length 479;
Best Local Similarity 86.1%; Pred. No. 3.4e-23;
Matches 93; Conservative 5; Mismatches 10; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALPNPVXEELEELSPEDNLK 60
Db 295 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALQNVAAEELEELSKLEDNLK 354

Qy 61 DAETHNVEDYIKGLEEAIATKQAELEETPOQVDAALNDLVPDGGEE 108
Db 355 DAETHNVEDYIKGLEEAIATKQAELEKTQKELDAALNELGPDGDEE 402

RESULT 3
Q9LAX5 PRELIMINARY; PRT; 481 AA.
ID Q9LAX5;
AC Q9LAX5;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG11703;
RX MEDLINE=20448953; PubMed=10992499;
RA DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071821; AAF27716.1; -.
DR HSP; P58301; 1L8D.
DR NON_TER 481
SQ SEQUENCE 481 AA; 53500 MW; EA3C66445EFCE2B CRC64;

Query Match 82.4%; Score 445; DB 2; Length 481;
Best Local Similarity 86.1%; Pred. No. 3.5e-23;
Matches 93; Conservative 5; Mismatches 10; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALPNPVXEELEELSPEDNLK 60
Db 295 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALQNVAAEELEELSKLEDNLK 354

Qy 61 DAETHNVEDYIKGLEEAIATKQAELEETPOQVDAALNDLVPDGGEE 108
Db 355 DAETHNVEDYIKGLEEAIATKQAELEKTQKELDAALNELGPDGDEE 402

RESULT 4
Q9L5B4 PRELIMINARY; PRT; 246 AA.
ID Q9L5B4;
AC Q9L5B4;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
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DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF253408; AAF67356.1; -.
DR HSP; P05412; 1JNM.
FT NON_TER 246 246
FT NON_TER 246 246
SQ SEQUENCE 246 AA; 26972 MW; 2190BED1460D26D9 CRC64;

Query Match 81.7%; Score 441; DB 2; Length 246;
Best Local Similarity 85.2%; Pred. No. 3.2e-23;
Matches 92; Conservative 6; Mismatches 10; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALPNPVXEELEELSPEDNLK 60
Db 52 LEKAAELENLSTLDPGKQTQDELKGAEEALNKKVEALQNVAAEELEELSKLEDNLK 111

Qy 61 DAETHNVEDYIKGLEEAIATKQAELEETPOQVDAALNDLVPDGGEE 108
Db 112 DAETHNVEDYIKGLEEAIATKQAELEKTQKELDAALNELGPDGDEE 159

RESULT 5
Q8KQK2 PRELIMINARY; PRT; 107 AA.
ID Q8KQK2;
AC Q8KQK2;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT 01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE Pneumococcal surface protein A (fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=255/00;
RX MEDLINE=22170754; PubMed=12183557;
RA DOI=10.1128/IAI.70.9.5086-5090.2002;
RA Miyaji E.N., Ferreira D.M., Lopes A.P.Y., Brandileone M.C.C.,
Dias W.O., Leite L.C.C.;
RT "Analysis of serum cross-reactivity and cross-protection elicited by
immunization with DNA vaccines against Streptococcus pneumoniae
expressing PspA fragments from different clades.";
RL Infect. Immun. 70:5086-5090(2002).
DR EMBL; AY082390; AAL92495.1; -.
FT NON_TER 107 107
FT NON_TER 107 107
SQ SEQUENCE 107 AA; 11897 MW; 47913E25EE47D5CC CRC64;

Query Match 80.7%; Score 436; DB 2; Length 107;
Best Local Similarity 85.0%; Pred. No. 2.9e-23;
Matches 91; Conservative 6; Mismatches 10; Indels 0; Gaps 0;
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Result No.	Score	Query %		DB	ID	Description
		Match	Length			
1	463	85.7	480	2	Q91AX3	Q91ax3 streptococc
2	445	82.4	479	2	Q91AX2	Q91ax2 streptococc
3	445	82.4	481	2	Q91AX5	Q91ax5 streptococc
4	441	81.7	246	2	Q91JB4	Q91sb4 streptococc
5	436	80.7	107	2	Q8XQK2	Q8xkq2 streptococc
6	418	77.4	213	2	Q8GNS7	Q8gns7 streptococc
7	414	76.7	653	2	Q34097	Q34097 streptococc
8	310.5	57.5	211	2	Q8GNT0	Q8gnt0 streptococc
9	310.5	57.5	257	2	Q91J94	Q91j94 streptococc
10	295.5	54.7	461	2	Q91AX6	Q91ax6 streptococc
11	287.5	53.2	256	2	Q91J95	Q91j95 streptococc
12	284.5	52.7	227	2	Q91KGS0	Q91kgs0 streptococc
13	275	50.9	242	2	Q91J62	Q91j62 streptococc
14	263	48.7	222	2	Q91J584	Q91j584 streptococc
15	261	48.3	231	2	Q91J579	Q91j579 streptococc
16	261	48.3	241	2	Q91J580	Q91j580 streptococc
17	258	47.8	228	2	Q91J5B8	Q91j5b8 streptococc
18	258	47.8	235	2	Q91J582	Q91j582 streptococc
19	258	47.8	249	2	Q91J5D4	Q91j5d4 streptococc
20	258	47.8	252	2	Q91J583	Q91j583 streptococc
21	258	47.8	360	2	Q8XQK3	Q8xkq3 streptococc
22	258	47.8	429	2	Q91AX7	Q91ax7 streptococc
23	258	47.8	526	2	Q91AX9	Q91ax9 streptococc
24	258	47.8	608	2	Q8VQ55	Q8vg55 streptococc
25	258	47.8	744	2	Q97T39	Q97t39 streptococc
26	257	47.6	249	2	Q91J5B7	Q91j5b7 streptococc
27	257	47.6	502	2	Q91AX8	Q91ax8 streptococc
28	256	47.4	249	2	Q91J585	Q91j585 streptococc
29	256	47.4	256	2	Q91J590	Q91j590 streptococc
30	249	46.1	209	2	Q91J593	Q91j593 streptococc
31	178	33.0	117	2	Q91AY3	Q91ay3 streptococc


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Query Match      18.5%; Score 100; DB 2; Length 1937;
Best Local Similarity 31.5%; Pred. No. 16;
Matches 29; Conservative 15; Mismatches 34; Indels 14; Gaps 2;

QY 1 LEKAAELENLSTLDPGGKTQDELDKGAEEAEENKVKVEALPNPVXEEELSPEDNLK 60
Db 1083 LEKKEFEISNLISKIE-----DEQAVEIQLOKKIKELQARIEELGEEIEAERASRA 1133
QY 61 DAETNHVE-----DYIKEGLEBAIATKQAELE 87
Db 1134 KAEKQSDLSRELEISERLEAEAGGATSAQVE 1165

RESULT 15
S21880
dnaK-type molecular chaperone blp5 precursor - common tobacco
N:Alternate names: luminal binding protein blp5
C:Species: Nicotiana tabacum (common tobacco)
C:Date: 07-Apr-1994 #sequence_revision 07-Apr-1994 #text_change 09-Jul-2004
C:Accession: S21880; JQ1361
R:Denecke, J.; Goldman, M.H.; Demolder, J.; Seurinck, J.; Botterman, J.
submitted to the EMBL Data Library, June 1991
A:Description: The luminal binding protein (Bip) is encoded by a multigene family in tobacco
A:Reference number: S21877
A:Accession: S21880
A:Molecule type: mRNA
A:Residues: 1-668 <DEN>
A:Cross-references: UNIPROT:Q03685; EMBL:X60058; NID:g19812; PIDN:CAA42660.1; PID:g19813
R:Denecke, J.; Goldman, M.H.S.; Demolder, J.; Seurinck, J.; Botterman, J.
Plant Cell 3, 1025-1035, 1991
A:Title: The tobacco luminal binding protein is encoded by a multigene family.
A:Reference number: JQ1360; MUID:92361242; PMID:1822990
A:Accession: JQ1361
A:Molecule type: mRNA
A:Residues: 1-653,'G', 655-668 <DEW>
A:Note: translation of the nucleotide sequence is not complete
C:Genetics:
A:Gene: blp5
C:Function:
A:Description: involved in protein folding and assembling/disassembling of protein complex
uration steps in vivo
C:Superfamily: heat shock protein 70
C:Keywords: ATP; endoplasmic reticulum; molecular chaperone
F:1-24/Domain: signal sequence #status predicted <SIG>
F:665-668/Region: endoplasmic reticulum retention signal

Query Match      18.4%; Score 99.5; DB 2; Length 668;
Best Local Similarity 26.9%; Pred. No. 5.2;
Matches 36; Conservative 23; Mismatches 48; Indels 27; Gaps 5;

QY 2 EKAEELENLSTLDPGGKTQDELDKGAEE-----AELNKKVE-----ALPNPVXEELE 50
Db 524 DKASGKSEKITITNDKGRLSQSEIERVMYKAEFEAEEDKKVKERIDARNSLETYYNNRN 583
QY 51 ELSPPE---DNKDAETHNHVEDYIKEGLEBAIATKQAELE---ETPQVDAALNDLV--- 101
Db 584 QINDKDKLADKLESDEKKEIETATKEALEWLDNQSAEKEDYDEKLEVEAVCNPIITAV 643
QY 102 -----PDGGEEL 108
Db 644 YORSGAPGGAASEE 657

Search completed: November 17, 2005, 20:39:54
Job time : 15.1144 secs
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submitted to the EMBL Data Library, April 1997
A:Description: A sunflower HSP70-related gene.
A:Reference number: Z17944
A:Accession: T14261
A>Status: preliminary; translated from GB/EMBL/DBDJ
A:Molecule type: mRNA
A:Residues: 1-264 <CU>
A:Cross-references: UNIPROT:004223; EMBL:U96641; NID:g2098792; PID:g2098793
A:Experimental source: strain RHA266; hypocotyl
C:Function:
A:Description: probably involved in protein folding and assembling/disassembling of protein
C:Superfamily: heat shock protein 70
C:Keywords: molecular chaperone; stress-induced protein

Query Match 18.8%; Score 101.5; DB 2; Length 264;
Best Local Similarity 27.1%; Pred. No. 1.3;
Matches 36; Conservative 24; Mismatches 46; Indels 27; Gaps 5;

Qy 2 EKAAELENLLSTLDPGGKTQDELKGAEEAATKQAELEETPQ-----AEINKKVE-----ALPNPYKELEE 50
Db 121 DKASGKSEKITITNEKGRLSQBEIERMVRFAEFAEDKKVKEKIDARNALETYYNNKN 180
Qy 51 ELSPPE---DNLKDAETHVDEYIKGLEEAATKQAELEETPQ---EVDAAALNDLV--- 101
Db 181 KNDKDKLADKLESDEKEKIEATKAEALDRLDDNQSAREEVEDEKLEKEAVCNPIVTAV 240
Qy 102 -----PDGGBE 107
Db 241 YQSGGAFGGGAE 253

RESULT 10
A:59252
myosin heavy chain, nonmuscle, form IIB - human
N:Alternate names: myosin type 10; NMHC-B
N:Contains: myosin ATPase (EC 3.6.4.1)
C:Species: Homo sapiens (man)
C:Date: 19-May-2000 #sequence revision 19-May-2000 #text_change 09-Jul-2004
A:Accession: A59252; B61231; G02055
R:Phillips, C.L.; Yamakawa, K.; Adelstein, R.S.
J. Muscle Res. Cell. Motil. 16, 379-389, 1995
A:Title: Cloning of the cDNA encoding human nonmuscle myosin heavy chain-B and analysis
A:Reference number: A59252; MUID:96025307; PMID:7499478
A:Accession: A59252
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-1976 <SIM>
A:Cross-references: UNIPROT:P35580; GB:M69181; NID:g641957; PIDN:AAA99177.1; PID:g641958
A:Experimental source: clone lib Lambda Zap II adult human T-cell library; cell line Jux
A>Note: between nucleotides 1942-1943 in mRNA encoding human brain MHC-B there is an alt
R:Simons, M.; Wang, M.; McBride, O.W.; Kawamoto, S.; Yamakawa, K.; Gdula, D.; Adelstein,
Circ. Res. 69, 530-539, 1991
A:Title: Human nonmuscle myosin heavy chains are encoded by two genes located on differe
A:Reference number: A61231; MUID:91316803; PMID:1860190
A:Accession: B61231
A:Molecule type: mRNA
A:Residues: 63-237, 'K', 239-664, 'L', 666-722 <SI2>
A:Cross-references: GB:M69181; NID:g641957
R:Weir, L.
submitted to the EMBL Data Library, August 1995
A:Reference number: H00753
A:Accession: G02055
A>Status: translated from GB/EMBL/DBDJ
A:Molecule type: mRNA
A:Residues: 1-81 <WEI>
A:Cross-references: EMBL:U34304; NID:g1143217; PIDN:AAA84890.1; PID:g1143218
C:Genetics:
A:Gene: GDB:MYH10
A:Map position: 17p13-17p13
A:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: actin binding; ATP; coiled coil; hydrolase; methylated amino acid; nucleotide
F:88-771/Domain: myosin motor domain homology <MMO>

F:178-185/Region: nucleotide-binding motif A (P-loop)
F:559-572/Region: actin binding #status predicted
F:633-647/Region: actin binding #status predicted
F:129/Modified site: N6,N6-trimethyllysine (Lys) #status predicted
F:184/Binding site: ATP (Lys) #status predicted
F:701,711/Active site: Cys #status predicted

Query Match 18.8%; Score 101.5; DB 2; Length 1976;
Best Local Similarity 29.5%; Pred. No. 12;
Matches 31; Conservative 22; Mismatches 41; Indels 11; Gaps 3;

Qy 2 EKAAELENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPYKELEEELSPEDNLKD 61
Db 1507 KQLRADMEDLMSSKDDYGVKNVHELEK--SKRAEQQVEEMRTQLEELDELQATEDAKLR 1564
Qy 62 AETHVDEYIKGLEEAATKQAELEETP-----OEVDAAALND 99
Db 1565 LEVN--NQAKAQFERDLQTRDEQNEERKRLIKQVRELEAELED 1607

RESULT 11
F:6840
hypothetical protein F23A5.16 [imported] - Arabidopsis thaliana
C:Species: Arabidopsis thaliana (mouse-ear cress)
C:Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 09-Jul-2004
R:Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso,
Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Huizar, L.
Nature 408, 816-820, 2000
A:Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.
C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziani,
Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A:Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon,
ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.
A:Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A:Reference number: A86141; MUID:21016719; PMID:11130712
A:Accession: F96840
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-780 <STO>
A:Cross-references: UNIPROT:Q9SAI0; GB:AE005173; NID:g6503292; PIDN:AAF14668.1; GSPDB:GN
C:Genetics:
A:Gene: F23A5.16
A:Map position: 1

Query Match 18.7%; Score 101; DB 2; Length 780;
Best Local Similarity 33.9%; Pred. No. 4.8;
Matches 37; Conservative 16; Mismatches 44; Indels 12; Gaps 4;

Qy 5 EAAELENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPYKELEEELSPEDNLKDAET 64
Db 671 EQEVED-----DCSDKKKQSDKG-VEAETKEEKQYPSNSESSEGESESESEPKWRET 724
Qy 65 NHVEDYIKGLEEAATKQAELEETPOEVD-----AALNDLVDPGGEEE 108
Db 725 DDMED-DEEBEEDIDHMEDEAEKEEVEVDKKEASANNSETEKEEBEE 772

RESULT 12
S33441
EF protein - Streptococcus suis
C:Species: Streptococcus suis
C:Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change 09-Jul-2004
A:Accession: S33441
R:Smith, H.E.; Reek, F.H.; Vecht, U.; Gielkens, A.L.J.; Smits, M.A.
submitted to the EMBL Data Library, May 1993
A:Description: Repeats in an extracellular protein of weak-pathogenic strains are absent
A:Reference number: S33441
A:Accession: S33441
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-1822 <SMI>

A:Cross-references: UNIPROT:Q54972; UNIPROT:Q8DR10; GB:AE007317; PIDN:AAK98925.1; PID:gl
C:Genetics: pspA
Query Match 30.9%; Score 167; DB 2; Length 619;
Best Local Similarity 39.6%; Pred. No. 5.3e-05;
Matches 44; Conservative 20; Mismatches 29; Indels 18; Gaps 3;
Qy 6 ALENLLSTLDPGGKTQDELK-----GAAPAEALNKVKEALPNPVXLE 49
Db 210 ALENQVHRLEQELKEIDSESEDYAKGFRAPLQSKLDKAKKLS-KLEELSDKIDELD 268
Qy 50 BELSPEDNLKDA-ETNHVEDYIKGLEEAATKQAELEETPOEVDALND 99
Db 269 AEIAKLEQLKAAEENNVVDYFKGLEKTTAAKKALEKTEADLKAVNE 319
RESULT 3
A1971
surface protein pspA precursor - Streptococcus pneumoniae
N:Alternate names: pneumococcal surface protein A
C:Species: Streptococcus pneumoniae
C:Date: 04-Mar-1993 #sequence revision 18-Nov-1994 #text_change 09-Jul-2004
C:Accession: A41971; A60282; A3134
R:Yother, J.; Briles, D.E.
J. Bacteriol. 174, 601-609, 1992
A:Title: Structural properties and evolutionary relationships of PspA, a surface protein
A:Reference number: A41971; MUID:92105030; PMID:1729249
A:Accession: A41971
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-619 <YOT>
A:Cross-references: UNIPROT:Q54972; UNIPROT:Q8DR10; GB:M74122; NID:G153840; PIDN:AAA2701
A:Note: sequence extracted from NCBI backbone (NCBI:75635, NCBI:75636)
R:Talkington, D.F.; Crimmins, D.L.; Voellinger, D.C.; Yother, J.; Briles, D.E.
Infect. Immun. 59, 1285-1289, 1991
A:Title: A 43-kilodalton pneumococcal surface protein, PspA: isolation, protective ability
A:Reference number: A60282; MUID:91169598; PMID:2004810
A:Accession: A60282
A:Molecule type: protein
A:Residues: 32-76 <TAL>
A:Experimental source: strain JY2008
C:Genetics: pspA
F:1-31/Domain: signal sequence #status predicted <SIG>
F:32-619/Product: surface protein pspA #status predicted <MAT>
F:411-430/Domain: cpl repeat homology <CP01>
F:431-450/Domain: cpl repeat homology <CP02>
F:451-470/Domain: cpl repeat homology <CP03>
F:471-490/Domain: cpl repeat homology <CP04>
F:491-510/Domain: cpl repeat homology <CP05>
F:511-530/Domain: cpl repeat homology <CP06>
F:531-550/Domain: cpl repeat homology <CP07>
F:551-570/Domain: cpl repeat homology <CP08>
F:571-591/Domain: cpl repeat homology <CP09>
F:592-611/Domain: cpl repeat homology <CP10>
Query Match 30.9%; Score 167; DB 2; Length 619;
Best Local Similarity 39.6%; Pred. No. 5.3e-05;
Matches 44; Conservative 20; Mismatches 29; Indels 18; Gaps 3;
Qy 6 ALENLLSTLDPGGKTQDELK-----GAAPAEALNKVKEALPNPVXLE 49
Db 210 ALENQVHRLEQELKEIDSESEDYAKGFRAPLQSKLDKAKKLS-KLEELSDKIDELD 268
Qy 50 BELSPEDNLKDA-ETNHVEDYIKGLEEAATKQAELEETPOEVDALND 99
Db 269 AEIAKLEQLKAAEENNVVDYFKGLEKTTAAKKALEKTEADLKAVNE 319
RESULT 4
A61231
myosin heavy chain nonmuscle form A - human

N:Alternate names: cellular myosin heavy chain; myosin type 9; NMHC-A
N:Contains: myosin ATPase (SC 3.6.4.1)
C:Species: Homo sapiens (man)
C:Date: 12-May-1994 #sequence revision 14-Jul-1994 #text_change 09-Jul-2004
C:Accession: A61231; A34876; I52562; I61692
R:Simons, M.; Wang, M.; McBrade, O.W.; Kawamoto, S.; Yamakawa, K.; Gdula, D.; Adelstein, C.
Circ. Res. 69, 530-539, 1991
A:Title: Human nonmuscle myosin heavy chains are encoded by two genes located on different chromosomes
A:Reference number: A61231; MUID:91316803; PMID:1860190
A:Accession: A61231
A:Molecule type: mRNA
A:Residues: 1-715 <SIM>
A:Cross-references: UNIPROT:P35579; UNIPROT:Q9UMJ0; GB:M69180; NID:G189029; PIDN:AAA6176
R:Saez, C.G.; Myers, J.C.; Shows, T.B.; Leinwand, L.A.
Proc. Natl. Acad. Sci. U.S.A. 87, 1164-1168, 1990
A:Title: Human nonmuscle myosin heavy chain mRNA: generation of diversity through alternative splicing
A:Reference number: A34876; MUID:90138958; PMID:1967836
A:Accession: A34876
A:Molecule type: mRNA
A:Residues: 715-1961 <SAE>
A:Cross-references: GB:M31013; NID:G189035; PIDN:AAA36349.1; PID:G189036
R:Toothaker, L.E.; Gonzalez, D.A.; Tung, N.; Lemons, R.S.; Le Beau, M.M.; Arnaout, M.A.; Blood 78, 1826-1833, 1991
A:Title: Cellular myosin heavy chain in human leukocytes: isolation of 5' cDNA clones, cDNA sequencing, and expression in Escherichia coli
A:Reference number: I52562; MUID:92003925; PMID:1912569
A:Accession: I52562
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-52 'EAT', 56-659, 'T', 661-868, 'T', 870-930, 'C', 932-1239, 'KG', 1242-1337 <RES>
A:Cross-references: GB:M81105; NID:G188988; PIDN:AAAS9888.1; PID:G553596
R:Bement, W.M.; Hasson, T.; Wirth, J.A.; Cheney, R.E.; Mooseker, M.S.
Proc. Natl. Acad. Sci. U.S.A. 91, 6549-6553, 1994
A:Title: Identification and overlapping expression of multiple unconventional myosin genes in Dictyostelium
A:Reference number: A55758; MUID:94294418; PMID:8022818
A:Accession: I61692
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 182-218 <BEM>
A:Cross-references: GB:L29141; NID:G457249; PIDN:AAA20904.1; PID:G531134
C:Genetics: pspA
A:Gene: GDB:MYH9
A:Cross-references: GDB:L20216; OMIM:160775
A:Map position: 22q12.3-22q13.1
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: actin binding; ATP; coiled coil; hydrolyase; methylated amino acid; nucleotide binding site
F:84-764/Domain: myosin motor domain homology <MMOT>
F:174-181/Region: nucleotide-binding motif A (P-loop)
F:552-565/Region: actin binding #status predicted
F:626-640/Region: actin binding #status predicted
F:837-1938/Domain: coiled coil #status predicted <COI>
F:837-1277/Domain: S2 #status predicted <DS2>
F:1278-1961/Domain: light meromyosin #status predicted <LMM>
F:1939-1961/Domain: carboxyl-terminal <CRT>
F:125/Modified site: N6,N6-trimethyllysine (Lys) #status predicted
F:180/Binding site: ATP (Lys) #status predicted
F:694,704/Active site: Cys #status predicted
Query Match 20.4%; Score 110; DB 1; Length 1961;
Best Local Similarity 29.8%; Pred. No. 2.9;
Matches 34; Conservative 23; Mismatches 37; Indels 20; Gaps 4;
Qy 2 EKAF-----AELENLLSTLDPGGKTQDELKGAAPAEALNKVKEALPNPVXLEEL 52
Db 1492 QKAELRLNKQFRTEMDLMSKDDVGVKSVELEK--SKRALEQQVEEMKTLQEELEDEL 1549
Qy 53 SPPE-----NLKDAETHVEDYIKGLEEAATKQAELEETPOEVDALND 99
Db 1550 QATEDAKRLLEVNLIQAMKAQFERDL--QGRDEOSEKKQLVQVREMEAELE 1601
RESULT 5
D71453
hypothetical protein PH0283 - Pyrococcus horikoshii

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 20:04:33 ; Search time 14.1144 Seconds
(without alignments)
736.230 Million cell updates/sec

Title: US-10-674-755-26
Perfect score: 540
Sequence: 1 LEKAEAELENLLSTLDPGCK.....TPQEVDAALNDLVPDGGSEE 108

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues
Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR 79:.*
1: pir1.*
2: pir2.*
3: pir3.*
4: pir4.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	258	47.8	744	2 F95013	pneumococcal surfa
2	167	30.9	619	2 A97887	surface protein ps
3	167	30.9	619	2 A41971	surface protein ps
4	110	20.4	1961	1 A61231	myosin heavy chain
5	107	19.8	279	2 D71453	hypothetical prote
6	104.5	19.4	1964	2 A59282	nonmuscle myosin I
7	104.5	19.4	1992	2 A47297	myosin heavy chain
8	102.5	19.0	2954	2 T14156	kinesin-related pr
9	101.5	18.8	264	2 T14261	dnak-type molecula
10	101.5	18.8	1976	2 A59252	myosin heavy chain
11	101	18.7	780	2 F96840	hypothetical prote
12	101	18.7	1822	2 S33441	EF protein - Strept
13	101	18.7	1959	1 A33977	myosin heavy chain
14	100	18.5	1937	2 I38055	myosin heavy chain
15	99.5	18.4	668	2 S21880	dnak-type molecula
16	98.5	18.2	501	2 A38650	myosin heavy chain
17	98.5	18.2	668	2 S71171	dnak-type molecula
18	98	18.1	721	2 S29795	hypothetical prote
19	97.5	18.1	292	2 S21878	dnak-type molecula
20	97.5	18.1	630	2 S29796	hypothetical prote
21	96.5	17.9	290	2 S21877	dnak-type molecula
22	96.5	17.9	399	2 E71169	hypothetical prote
23	96.5	17.9	663	2 T03581	dnak-type molecula
24	96.5	17.9	2007	1 B43402	myosin heavy chain
25	96	17.8	1938	2 I49464	alpha cardiac myos
26	96	17.8	1979	1 S03166	myosin heavy chain
27	95.5	17.7	372	2 S23226	gene M12.2 protein
28	95.5	17.7	533	2 G72593	hypothetical prote
29	95	17.6	1934	2 I48153	myosin heavy chain

ALIGNMENTS

RESULT 1

F95013
pneumococcal surface protein A [imported] - Streptococcus pneumoniae (strain TIGR4)
C:Species: Streptococcus pneumoniae
C:Date: 03-Aug-2001 #sequence_revision 03-Aug-2001 #text_change 09-Jul-2004
C:Accession: F95013
R:Tettelin, H.; Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Read, T.D.; Peterson, S.; Hei-
on, J.D.; Umayam, L.A.; White, O.; Salzberg, S.L.; Lewis, M.R.; Radune, D.; Holtzapple,
non, T.; Hickey, E.K.; Holt, I.E.
Science 293, 498-506, 2001
A:Authors: Loftus, B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; Dougherty, B.A.; Morrison,
A:Title: Complete Genome Sequence of a virulent isolate of Streptococcus pneumoniae.
A:Reference number: A95000; MUID:21357209; PMID:11463916
A:Accession: F95013
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-744 <KUR>
A:Cross-references: UNIPROT:Q97T39; GB:AE005672; PIDN:AAK74303.1; PID:g14971584; GSPDB:G
A:Experimental source: strain TIGR4
C:Genetics:
A:Gene: SP0117

Query Match 47.8%; Score 258; DB 2; Length 744;

Best Local Similarity 55.6%; Pred. No. 1.4e-11;

Matches 60; Conservative 16; Mismatches 28; Indels 4; Gaps 2;

QY 1 LEKAEAELENLLSTLDPGCKTQDELKGAEEALNKKVEALPNPVKELEELSPEDNLK 60

Db 346 LAKKQTELEKLLDSLDPRGKTQDELKGAEEALNKKVEALPNPVKELEELSPEDNLK 405

QY 61 DAETNHVEDYIKEGLEEAIAATKQAELEETPOVDAAALNDLVPDGGEEE 108

Db 406 GADS---ED-DTAAALQNKLATKKALEKTQKELDAALNELPGDGGEEE 449

RESULT 2

A97887
surface protein pspA precursor [imported] - Streptococcus pneumoniae (strain R6)
C:Species: Streptococcus pneumoniae
C:Date: 22-Oct-2001 #sequence_revision 22-Oct-2001 #text_change 09-Jul-2004
C:Accession: A97887
R:Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blaszczyk, L.; Burgett, S.; DeHoff, B.S.; E
e, R.; LeBlanc, D.J.; Lee, L.N.; Lefkowitz, E.J.; Lu, J.; Matsuhashima, P.; McAhren, S.; M
Y, P.; Sun, P.M.; Winkler, M.E.
J. Bacteriol. 183, 5709-5717, 2001
A:Authors: Yang, Y.; Young-Bellido, M.; Zhao, G.; Zook, C.; Baltz, R.H.; Jaekunas, S.R.;
A:Title: Genome of the Bacterium Streptococcus pneumoniae Strain R6.
A:Reference number: A97872; MUID:21429245; PMID:11544234
A:Accession: A97887

A>Status: preliminary

A:Molecule type: DNA

A:Residues: 1-619 <KUR>

```

XX AAW14590;
AC
XX
XX 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
DE Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Ef5668.
XX
PN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, Medaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
DR WPI; 1997-202002/18.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
PS Example 6; Fig 13; 296pp; English.
XX
XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see
CC also AAW14592). Comparison of the N-terminal and central regions
CC (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains
CC can be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ Sequence 233 AA;

Query Match 74.7%; Score 403.5; DB 2; Length 233;
Best Local Similarity 78.9%; Pred. No. 2.2e-30;
Matches 86; Conservative 9; Mismatches 13; Indels 1; Gaps 1;

QY 1 LEKAAELENLSTLDP-GGKTODELDKAAEALNKKVEALPNPVXLEBELSPEDNL 59
DB 51 LEDAELEKVLATLDPEGKTQDLDKRAEAEALNEKVEALQNVAELEBELSKLEDNL 110
QY 60 KDAETNHVEDYIKEGLEAEIATKQAELETPOEVDAALNDLVDPDGEDEE 108
DB 111 KDAETNHVEDYIKEGLEAEIATKQAELETQKELDAALNELGPDGDEEE 159

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Search completed: November 17, 2005, 20:19:43
Job time : 76.7468 secs

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Query Match          76.7%; Score 414; DB 7; Length 458;
Best Local Similarity 79.6%; Pred. No. 5e-31;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGKTDQDELKGAAEALNKKVEALPNPVXEEELSPEDNLK 60
   ||| ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 276 LEDAELEKVLATLDPEGKTQDELKGAAEALNKKVEALQNVAAEELSKLEDNLK 335
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 108
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 336 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 383
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

RESULT 13
ADK52495
ID ADK52495 standard; protein; 653 AA.
XX
AC ADK52495;
XX
DT 20-MAY-2004 (first entry)
XX
PspA molecule from the Rxl strain of Streptococcus pneumoniae.
XX
Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
Streptococcus pneumoniae.
XX
WO2004016231-A2.
XX
PD 26-FEB-2004.
XX
PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
(UABR-) UAB RES FOUND.
PA
PI Briles DE;
XX
DR WPI; 2004-192068/18.
XX
PT Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
PS Claim 17; SEQ ID NO 1; 41pp; English.
XX
CC The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents PspA
CC molecule from the Rxl strain of Streptococcus pneumoniae.
XX
SQ Sequence 653 AA;

Query Match          76.7%; Score 414; DB 8; Length 653;
Best Local Similarity 79.6%; Pred. No. 7.6e-31;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGKTDQDELKGAAEALNKKVEALPNPVXEEELSPEDNLK 60
   ||| ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 276 LEDAELEKVLATLDPEGKTQDELKGAAEALNKKVEALQNVAAEELSKLEDNLK 335
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 108
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 336 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 383
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
```

```
RESULT 14
AD052080
ID AD052080 standard; protein; 653 AA.
XX
AC AD052080;
XX
DT 12-AUG-2004 (first entry)
XX
S. pneumoniae strain EF5688 PspA protein.
XX
Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.
XX
Streptococcus pneumoniae.
XX
FH Key Location/Qualifiers
FT Peptide 1..31
FT Protein /label= Signal_peptide 32..653
FT Domain /note= "S. pneumoniae strain EF5688 mature PspA protein" 110..384
FT /note = PspA alpha-helical domain
XX
US2004101531-A1.
XX
PD 27-MAY-2004.
XX
PF 15-APR-2003; 2003US-00414532.
XX
PR 16-APR-2002; 2002US-0372710P.
XX
(CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX
DR WPI; 2004-399655/37.
XX
N-PSDB; AD052067.
XX
New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
Example 5; SEQ ID NO 26; 94pp; English.
XX
The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA). This
CC sequence is used in the exemplification of the invention.
XX
SQ Sequence 653 AA;

Query Match          76.7%; Score 414; DB 8; Length 653;
Best Local Similarity 79.6%; Pred. No. 7.6e-31;
Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGKTDQDELKGAAEALNKKVEALPNPVXEEELSPEDNLK 60
   ||| ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 276 LEDAELEKVLATLDPEGKTQDELKGAAEALNKKVEALQNVAAEELSKLEDNLK 335
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
QY 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 108
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 336 DAETNNVEDYIKEGLEEAIAATKQAELEETPOVDAALNDLVPDGGEEE 383
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

RESULT 15
AAW14590
ID AAW14590 standard; protein; 233 AA.
```


PS Claim 17; SEQ ID NO 2; 41pp; English.

XX The present invention relates to treating Streptococcus pneumoniae infection in a subject lacking a functional spleen comprising administering an antibody that recognizes pneumococcal surface protein A (PspA) or its binding portion. The method is useful for treating or preventing Streptococcus pneumoniae infection in a subject lacking a functional spleen. The disease-associated injury is especially due to hemolytic anemia disease, leukemia or lymphoma, especially sickle cell anemia or Hodgkin's disease. The present sequence represents the alpha helical region PspA molecule from the Rxi strain of Streptococcus pneumoniae.

XX SQ Sequence 369 AA;

Query Match 76.7%; Score 414; DB 8; Length 369;
 Best Local Similarity 79.6%; Pred. No. 3.8e-31;
 Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

OY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEAELENKKVEALPNPVXEEELSPPEDNLK 60
 |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 245 LEDAELEKVLATLDPEGKTQDELKGAAEAELENKKVEALQNVAELEELSLEDNLK 304

OY 61 DAETNNVEDYIKEGLEAEIATKQAELESTPQEVDAALNDLVPDGGEE 108
 |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 305 DAETNNVEDYIKEGLEAEIATKQAELESTPQEVDAALNDLVPDGGEE 352

RESULT 11

AAW14592

ID AAW14592 standard; protein; 458 AA.

AC AAW14592;

DT 17-OCT-2003 (revised)

DT 27-OCT-1997 (first entry)

XX Streptococcus pneumoniae PspA surface protein.

XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis; bacteremia; pneumonia.

XX Streptococcus pneumoniae; strain Ef5668.

XX WO9709994-A1.

XX 20-MAR-1997.

XX 16-SEP-1996; 96WO-US014819.

XX 15-SEP-1995; 95US-00529055.

XX (UABR-) UAB RES FOUND.

XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
 Hollingshead S, Tart R, Brooks-Walter A;

XX WPI; 1997-202002/18.
 N-PSDB; AAT61724.

XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used in vaccines for protecting animals against S.pneumoniae infection.

XX Disclosure; Fig 13; 296pp; English.

XX This sequence comprises the pneumococcal surface protein A (pspA) of Streptococcus pneumoniae strain Ef5668. The sequence was deduced from the pspA gene (AAT61724). PspA polypeptides, or fragments of them, can be used in vaccines to protect animals against S. pneumoniae infection and hence for the prevention of diseases such as otitis media, meningitis, bacteraemia and pneumonia. (Updated on 17-OCT-2003 to standardise OS field)

SQ Sequence 458 AA;

Query Match 76.7%; Score 414; DB 2; Length 458;
 Best Local Similarity 79.6%; Pred. No. 5e-31;
 Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

OY 1 LEKAEAELENLLSTLDPGKQTQDELKGAAEAELENKKVEALPNPVXEEELSPPEDNLK 60
 |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 276 LEDAELEKVLATLDPEGKTQDELKGAAEAELENKKVEALQNVAELEELSLEDNLK 335

OY 61 DAETNNVEDYIKEGLEAEIATKQAELESTPQEVDAALNDLVPDGGEE 108
 |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 336 DAETNNVEDYIKEGLEAEIATKQAELESTPQEVDAALNDLVPDGGEE 383

RESULT 12

ABW02626

ID ABW02626 standard; protein; 458 AA.

AC ABW02626;

DT 12-FEB-2004 (first entry)

XX Ef5668 pneumococcal surface protein A (PspA).

XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine; immunological; gene therapy; immunostimulant.

XX Unidentified.

XX Key Location/Qualifiers

FT Misc-difference 458

FT /note= "Encoded by GC"

XX US6592876-B1.

XX 15-JUL-2003.

XX 15-SEP-1995; 95US-00529055.

XX 20-APR-1993; 93US-00048896.

XX 06-JUN-1995; 95US-00465746.

XX (UABR-) UAB RES FOUND.

XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;

XX WPI; 2003-862841/80.
 N-PSDB; AAD64535.

XX Immunological composition for obtaining expression products used for detecting the presence of Streptococcus pneumoniae or its strain, comprises at least two different full length isolated gene encoding pneumococcal surface protein A.

XX Example 6; SEQ ID NO 73; 121pp; English.

XX The present invention relates to an immunological composition comprising at least 2 different full length isolated genes encoding pneumococcal surface protein A (PspAs) from different groups based on restriction fragment polymorphism analysis. The invention is useful for obtaining expression products by recombinant techniques to detect, determine, isolate or diagnose the presence of Streptococcus pneumoniae or its strain. The expression product is useful for preparing antigenic, immunological or vaccine compositions, for eliciting antibodies, an immunological response (other than or additional to antibodies) or a protective response (including antibody or other immunological response by administering compositions to a host). The invention is also useful as vaccines and in gene therapy. The present sequence is Ef5668 pneumococcal surface protein A (PspA) used in the exemplification of the invention

XX SQ Sequence 458 AA;

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PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX WPI; 2003-862841/80.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 70; 121pp; English.
PS
PS The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspA) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef5688
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
XX Sequence 232 AA;
SQ
    Query Match          76.7%; Score 414; DB 7; Length 232;
    Best Local Similarity 79.6%; Pred. No. 2.2e-31;
    Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;
QY 1 LEKAAELENLSTLDPGKTQDELKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 60
Db 51 LEDAELEKVLATLDPEGKTQDELKGAAEALNKKVEALQNVAAELEEELSKLEDNLK 110
QY 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOEVDAALNDLVPDGGEE 108
Db 111 DAETNNVEDYIKEGLEEAIAATKQAELEKTQKELDAALNELGPDGDEE 158
RESULT 9
AD052055
ID AD052055 standard; protein; 275 AA.
XX
XX AC AD052055;
XX
XX DT 12-AUG-2004 (first entry)
XX
XX DE S. pneumoniae strain EF5688 PspA alpha helical domain.
KW Immunogenic composition; vaccine; Th2-type immune response ;
KW pneumococcal surface protein A; PspA.
OS Streptococcus pneumoniae.
XX
XX US2004101531-A1.
XX
XX PD 27-MAY-2004.
XX
XX PF 15-APR-2003; 2003US-00414532.
XX
XX
PR 16-APR-2002; 2002US-0372710P.
XX
XX (CURT/) CURTISS R.
XX (KANG/) KANG H Y.
XX
XX Curtiss R, Kang HY;
XX WPI; 2004-399655/37.
XX
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
XX Claim 17; SEQ ID NO 1; 94pp; English.
XX
XX The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX
XX Sequence 275 AA;
SQ
    Query Match          76.7%; Score 414; DB 8; Length 275;
    Best Local Similarity 79.6%; Pred. No. 2.7e-31;
    Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;
QY 1 LEKAAELENLSTLDPGKTQDELKGAAEALNKKVEALPNPVXLEEEELSPEDNLK 60
Db 167 LEDAELEKVLATLDPEGKTQDELKGAAEALNKKVEALQNVAAELEEELSKLEDNLK 226
QY 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOEVDAALNDLVPDGGEE 108
Db 227 DAETNNVEDYIKEGLEEAIAATKQAELEKTQKELDAALNELGPDGDEE 274
RESULT 10
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX
XX AC ADK52496;
XX
XX DT 20-MAY-2004 (first entry)
XX
XX DE alpha helical region PspA molecule from the Rx1 strain.
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
XX Streptococcus pneumoniae.
OS
XX WO2004016231-A2.
XX
XX PD 26-FEB-2004.
XX
XX PF 17-FEB-2003; 2003WO-US008199.
XX
XX PR 15-MAR-2002; 2002US-0365351P.
XX
XX PA (UABR-) UAB RES FOUND.
XX
XX Briles DE;
XX WPI; 2004-192068/18.
XX
XX Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
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AAW14588
ID AAW14588 standard; protein; 212 AA.
XX AC AAW14588;
XX DT 17-OCT-2003 (revised)
XX DT 28-OCT-1997 (first entry)
XX DE Streptococcus pneumoniae PspA central region.
XX KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
XX KW bacteraemia; pneumonia.
XX OS Streptococcus pneumoniae; strain Bg7817.
XX PN WO9709994-A1.
XX PD 20-MAR-1997.
XX PF 16-SEP-1996; 96WO-US014819.
XX PR 15-SEP-1995; 95US-00529055.
XX PA (UABR-) UAB RES FOUND.
XX PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
XX PI Hollingshead S, Tart R, Brooks-Walter A;
XX DR WPI; 1997-202002/18.
XX PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used
XX PT in vaccines for protecting animals against S.pneumoniae infection.
XX PS Example 6; Fig 13; 296pp; English.
XX CC This sequence shows the central portion, including the C-terminus of the
XX CC alpha-helix region and some of the proline-rich region, of pneumococcal
XX CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
XX CC Comparison of the N-terminal and central regions (AAW14533-57 and
XX CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
XX CC be used to divide the strains into several families based on sequence
XX CC homologies. PspA polypeptides, or fragments of them, can be used in
XX CC vaccines to protect animals against S. pneumoniae infection and hence for
XX CC the prevention of diseases such as otitis media, meningitis, bacteraemia
XX CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
XX CC region and the immediate 5' tip of the coding sequence are likely to be
XX CC the critical sequences for predicting PspA cross-reactions and vaccine
XX CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX SQ Sequence 212 AA;

Query Match 82.8%; Score 447; DB 2; Length 212;
Best Local Similarity 86.1%; Pred. No. 1.4e-34;
Matches 93; Conservative 4; Mismatches 11; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGGKTODELDKGAABAEALNKKVEALPNPVXEEELSPEDNLK 60
Db 28 LEKAGAGLGNLLSTLDPEGKTODELDKEAAEALNKKVEALPNQVAEEELSKLEDNLK 87
QY 61 DAETHNHVEDYIKEGLEEAATKQAELEETPOEVDAALNDLVPDGGEE 108
Db 88 DAETHNHVEDYIKEGLEEAATKQAELEETPKELDAALNELGPDGDEE 135

RESULT 7
ABW02622
ID ABW02622 standard; protein; 212 AA.
XX AC ABW02622;
XX DT 12-FEB-2004 (first entry)
XX DE Bg7817c pneumococcal surface protein A (PspA) central region.

AAW14588
ID AAW14588 standard; protein; 212 AA.
XX AC AAW14588;
XX DT 17-OCT-2003 (revised)
XX DT 28-OCT-1997 (first entry)
XX DE Streptococcus pneumoniae PspA central region.
XX KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
XX KW bacteraemia; pneumonia.
XX OS Streptococcus pneumoniae; strain Bg7817.
XX PN WO9709994-A1.
XX PD 20-MAR-1997.
XX PF 16-SEP-1996; 96WO-US014819.
XX PR 15-SEP-1995; 95US-00529055.
XX PA (UABR-) UAB RES FOUND.
XX PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
XX PI Hollingshead S, Tart R, Brooks-Walter A;
XX DR WPI; 1997-202002/18.
XX PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used
XX PT in vaccines for protecting animals against S.pneumoniae infection.
XX PS Example 6; Fig 13; 296pp; English.
XX CC This sequence shows the central portion, including the C-terminus of the
XX CC alpha-helix region and some of the proline-rich region, of pneumococcal
XX CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
XX CC Comparison of the N-terminal and central regions (AAW14533-57 and
XX CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
XX CC be used to divide the strains into several families based on sequence
XX CC homologies. PspA polypeptides, or fragments of them, can be used in
XX CC vaccines to protect animals against S. pneumoniae infection and hence for
XX CC the prevention of diseases such as otitis media, meningitis, bacteraemia
XX CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
XX CC region and the immediate 5' tip of the coding sequence are likely to be
XX CC the critical sequences for predicting PspA cross-reactions and vaccine
XX CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX SQ Sequence 212 AA;

Query Match 82.8%; Score 447; DB 2; Length 212;
Best Local Similarity 86.1%; Pred. No. 1.4e-34;
Matches 93; Conservative 4; Mismatches 11; Indels 0; Gaps 0;

QY 1 LEKAAELENLSTLDPGGKTODELDKGAABAEALNKKVEALPNPVXEEELSPEDNLK 60
Db 28 LEKAGAGLGNLLSTLDPEGKTODELDKEAAEALNKKVEALPNQVAEEELSKLEDNLK 87
QY 61 DAETHNHVEDYIKEGLEEAATKQAELEETPOEVDAALNDLVPDGGEE 108
Db 88 DAETHNHVEDYIKEGLEEAATKQAELEETPKELDAALNELGPDGDEE 135

RESULT 8
ABW02624
ID ABW02624 standard; protein; 232 AA.
XX AC ABW02624;
XX DT 12-FEB-2004 (first entry)
XX DE Ef5668c pneumococcal surface protein A (PspA) central region.
XX KW PspA; pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
XX KW immunological; gene therapy; immunostimulant.
XX OS Unidentified.

```

QY	QY	RESULT	6
1	LEKAAELENLLSTLDPGGKTODELDKGAEEALNKKVALLPNVXELEEEELSPPEINLK	60	

CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7561c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 185 AA;

Query Match 94.8%; Score 512; DB 7; Length 185;
Best Local Similarity 95.3%; Pred. No. 7.1e-41;
Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 2 EKAAELENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPVXLEEEELSPEDNLKD 61
: : |||||
Db 1 KQKVNLLENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPVXLEEEELSPEDNLKD 60

Qy 62 AETHNVEDYIKGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEE 108
|||
Db 61 AETHNVEDYIKGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEE 107

RESULT 2
ABU08487
ID ABU08487 standard; protein; 8991 AA.

XX AC ABU08487;

DT 24-JUN-2003 (first entry)

DE S. pneumoniae pneumococcal surface protein A (PspA) protein.

XX KW Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
KW alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
KW antibacterial.

XX OS Streptococcus pneumoniae.

XX FH Key Location/Qualifiers

FT Misc-difference 1..8991

FT /note= "All Xaa residues within this sequence are
FT unknown"

XX PN US6500613-B1.

XX PD 31-DEC-2002.

XX PF 16-SEP-1996; 96US-00714741.

XX PR 15-SEP-1995; 95US-00529055.

XX PA (UYAL-) UNIV ALABAMA.

XX PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;

XX DR WPI; 2003-361534/34.

XX Isolated PspC amino acid sequence used as polymerase chain reaction or
PT hybridization probe, comprises pneumococcal surface protein having alpha-
PT helical, proline rich and repeat regions.

XX PS Disclosure; Col 145-188; 186pp; English.

XX The present invention relates to the isolation of Streptococcus
CC pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
CC sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-
CC like protein having alpha-helical, proline rich and repeat regions. The
CC PspC and PspA proteins may be used in a vaccine to protect against
CC pneumococcal infections. The polynucleotide sequences encoding PspC and
CC PspA may be used for the expression of the proteins, and as PCR primers
CC or hybridisation probes. The present sequence represents S. pneumoniae

CC PspA protein
XX SQ Sequence 8991 AA;

Query Match 94.8%; Score 512; DB 6; Length 8991;
Best Local Similarity 95.3%; Pred. No. 8e-39; 3; Indels 0; Gaps 0;
Matches 102; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 2 EKAAELENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPVXLEEEELSPEDNLKD 61
: : |||||

Db 8380 KQKVNLLENLLSTLDPGGKTQDELKGAEEAELNKKVEALPNPVXLEEEELSPEDNLKD 8439

Qy 62 AETHNVEDYIKGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEE 108
|||

Db 8440 AETHNVEDYIKGLEEAIAATKQAELEETPQEVDAALNDLVPDGGEE 8486

RESULT 3

AAW14589

ID AAW14589 standard; protein; 184 AA.

XX AC AAW14589;

XX DT 17-OCT-2003 (revised)

DT 28-OCT-1997 (first entry)

XX DE Streptococcus pneumoniae PspA central region.

XX KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.

XX OS Streptococcus pneumoniae; strain Bg7561.

XX FH Key Location/Qualifiers

FT Misc-difference 44

FT /note= "unidentified amino acid"

XX PN WO9709994-A1.

XX PD 20-MAR-1997.

XX PF 16-SEP-1996; 96WO-US014819.

XX PR 15-SEP-1995; 95US-00529055.

XX PA (UABR-) UAB RES FOUND.

XX PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;

XX DR WPI; 1997-202002/18.

XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.

XX PS Example 6; Fig 13; 296pp; English.

XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7561.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX SQ Sequence 184 AA;

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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 76.7468 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-26

Perfect score: 540

Sequence: 1 LEKAAELENLLTLDPGK.....TPQEVDAALNDIVPDGSEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 385760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

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Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A_Geneseq_16Dec04:*

- 1: Geneseqp1980s:*
- 2: Geneseqp1990s:*
- 3: Geneseqp2000s:*
- 4: Geneseqp2001s:*
- 5: Geneseqp2002s:*
- 6: Geneseqp2003as:*
- 7: Geneseqp2003bs:*
- 8: Geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	512	94.8	185	7	ABW02623 Bg7561c p
2	512	94.8	8991	6	ABU08487
3	488.5	90.5	184	2	AAW14589 Streptoco
4	461	85.4	211	7	ABW02621 Bg11703c
5	461	85.4	238	2	AAW14587 Streptoco
6	447	82.8	212	7	ABW02622 Bg7817c p
7	447	82.8	212	7	ABW02624 Bf5668c p
8	414	76.7	232	7	ABW02624 Bf5668c p
9	414	76.7	275	8	ADO52055 S. pneumo
10	414	76.7	369	8	ADK52496 alpha hel
11	414	76.7	458	2	AAW14592 Streptoco
12	414	76.7	458	7	ABW02626 Bf5668 pn
13	414	76.7	653	8	ADK52495 PspA mole
14	414	76.7	653	8	ADO52080 S. pneumo
15	403.5	74.7	233	2	AAW14590 Streptoco
16	281	52.0	459	8	ADO15316 S_pneumon
17	270	50.0	213	7	ABW02601 Bg8090c p
18	259	48.0	213	7	AAW14567 Streptoco
19	258	47.8	416	8	ADK52498 alpha hel
20	258	47.8	526	8	ADK52497 PspA mole
21	258	47.8	744	6	ABU00449 S. pneumo
22	258	47.8	744	6	ADM92054 S. pneumon
23	258	47.8	745	3	AY81652 Streptoco
24	257	47.6	641	2	AAW61217 Streptoco
25	257	47.6	641	5	ABP54636 S. pneumo

26	257	47.6	641	7	ADC45241 S. pneumo
27	254	47.0	197	7	ABW02598 Ac122c pn
28	245	45.4	487	8	ADR04321 Streptoco
29	245	45.4	489	8	ADO52088 Streptoco
30	245	45.4	524	8	ADO52082 E. coli B
31	245	45.4	627	8	ADO52129 E. coli B
32	244	45.2	233	7	ABW02606 Bf1019c p
33	238	44.1	230	8	ADO52086 S. pneumo
34	238	44.1	230	8	ADR04319 Streptoco
35	238	44.1	290	8	ADO52119 PYA3637 b
36	238	44.1	298	8	ADO52127 PYA3637 b
37	237	43.9	233	2	AAW14572 Streptoco
38	236.5	43.8	196	2	AAW14564 Streptoco
39	231.5	42.9	119	2	AAW46291 Pneumonoc
40	231.5	42.9	215	2	AAW14563 Streptoco
41	231.5	42.9	215	7	ABW02597 Atcc6303c
42	167	30.9	204	2	AAW14571 Streptoco
43	167	30.9	204	7	ABW02605 Bf1019c p
44	167	30.9	289	2	AAW62276 Streptoco
45	167	30.9	289	2	AAV41840 Streptoco

ALIGNMENTS

RESULT 1
ABW02623
ID ABW02623 standard; protein; 185 AA.
XX AC ABW02623;
XX AC
DT 12-FEB-2004 (first entry)
XX DE Bg7561c pneumococcal surface protein A (PspA) central region.
XX KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX OS Unidentified.
XX FH Key Location/Qualifiers
FT Misc-difference 45
FT /label= Unknown
XX PN US6592876-B1.
XX PD 15-JUL-2003.
XX PF 15-SEP-1995; 95US-00529055.
XX PR 20-APR-1993; 93US-00048896.
XX PR 06-JUN-1995; 95US-00465746.
XX (UABR-) UAB RES FOUND.
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX WPI; 2003-862841/80.
XX Immunological composition for obtaining expression products used for
XX detecting the presence of Streptococcus pneumoniae or its strain,
XX comprises at least two different full length isolated gene encoding
XX pneumococcal surface protein A.
XX Example 6; SEQ ID NO 69; 121pp; English.
XX The present invention relates to an immunological composition comprising
XX at least 2 different full length isolated genes encoding pneumococcal
XX surface protein A (PspAs) from different groups based on restriction
XX fragment polymorphism analysis. The invention is useful for obtaining
XX expression products by recombinant techniques to detect, determine,
XX isolate or diagnose the presence of Streptococcus pneumoniae or its
XX strain. The expression product is useful for preparing antigenic,

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; LENGTH: 459
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: polypeptide of pSA-60 PspA insert sequence
US-10-702-305A-18

Query Match          68.3%; Score 361.5; DB 16; Length 459;
Best Local Similarity 66.1%; Pred. No. 3.5e-18;
Matches 76; Conservative 13; Mismatches 15; Indels 11; Gaps 2;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAE-----AELNEKVEALONQVAELEEEELSKLE 56
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 345 LEDAELEKVLATLDPEGKTQDELDKAAEDANTEALONKVADLENKVAEELDKVETRLQ 404
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 57 DNLDKAETNNVEDYIKEGLEEAIAATKKALEKT-----OKELDAALNELGPDG 104
   :|||: ||||: ||||: ||||: ||||: ||||: ||||: ||||: ||||: ||||: ||||:
Db 405 SOLKDAEENNVEDYKVEGLDKALTDKKVLENNNTQKALDTAQAALDTALNELGPDG 459

RESULT 14
US-10-414-532-34
; Sequence 34, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; PRIOR FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 34
; LENGTH: 487
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Protein
; OTHER INFORMATION: sequence of codon optimized pspA-EF5668-Rx1
US-10-414-532-34

Query Match          61.0%; Score 322.5; DB 16; Length 487;
Best Local Similarity 72.1%; Pred. No. 2.4e-15;
Matches 75; Conservative 4; Mismatches 16; Indels 9; Gaps 2;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALONQVAELEEEELSKLEDNLK 60
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 167 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALONQVAELEEEELSKLEDNLK 226
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 61 DAET-----NNVEDYIKEGLEEAIAATKKALEKTQKELDAA 96
   ||||| : | :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 227 DAETLQSPVASQSKAEKDYDAAKDAKNAKKA-VEDAQKALDDA 269

RESULT 15
US-10-414-533-21
; Sequence 21, Application US/10414533
; Publication No. US20040120962A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; TITLE OF INVENTION: MODULATION OF IMMUNE RESPONSES TO FOREIGN ANTIGENS EXPRESSED
; TITLE OF INVENTION: BY RECOMBINANT ATTENUATED BACTERIAL VECTORS
; FILE REFERENCE: 56029-40420
; CURRENT APPLICATION NUMBER: US/10/414,533
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,676
; PRIOR FILING DATE: 2002-04-15
; PRIOR APPLICATION NUMBER: 60/373,669
; PRIOR FILING DATE: 2002-04-18
```

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; NUMBER OF SEQ ID NOS: 22
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 21
; LENGTH: 487
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-533-21

Query Match          61.0%; Score 322.5; DB 16; Length 487;
Best Local Similarity 72.1%; Pred. No. 2.4e-15;
Matches 75; Conservative 4; Mismatches 16; Indels 9; Gaps 2;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALONQVAELEEEELSKLEDNLK 60
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 167 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALONQVAELEEEELSKLEDNLK 226
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 61 DAET-----NNVEDYIKEGLEEAIAATKKALEKTQKELDAA 96
   ||||| : | :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :| :|
Db 227 DAETLQSPVASQSKAEKDYDAAKDAKNAKKA-VEDAQKALDDA 269
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Search completed: November 17, 2005, 20:29:19
Job time : 72.832 secs

Matches 95; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATDPGKTDQDELKGAEEAEELNKKVEALQNVAAEELSKLEDNLK 60
 Db 28 LEKAGAGLNLSTLDPGKTDQDELKGAEEAEELNKKVEALPNVAAEELSKLEDNLK 87
 QY 61 DAETNNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 108
 Db 88 DAETHNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 135

RESULT 10
 US-10-674-755-22
 ; Sequence 22, Application US/10674755
 ; Publication No. US20040067237A1
 ; GENERAL INFORMATION:
 ; APPLICANT: BECKER et al.
 ; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
 ; FILE REFERENCE: 454312-2471
 ; CURRENT APPLICATION NUMBER: US/10/674,755
 ; CURRENT FILING DATE: 2003-09-30
 ; PRIOR APPLICATION NUMBER: US/09/147,875A
 ; PRIOR FILING DATE: 1999-05-24
 ; NUMBER OF SEQ ID NOS: 28
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 22
 ; LENGTH: 106
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-674-755-22

Query Match 86.0%; Score 455; DB 15; Length 106;
 Best Local Similarity 89.8%; Pred. No. 1.3e-25;
 Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

QY 1 LEDAELEKVLATDPGKTDQDELKGAEEAEELNKKVEALQNVAAEELSKLEDNLK 60
 Db 1 LEKAELENLSTLDPGKTDQDELKGAEEAEELNKKVEALPNVAAEELSKLEDNLK 59
 QY 61 DAETNNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 108
 Db 60 DAET-NVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 106

RESULT 11
 US-10-674-755-26
 ; Sequence 26, Application US/10674755
 ; Publication No. US20040067237A1
 ; GENERAL INFORMATION:
 ; APPLICANT: BECKER et al.
 ; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
 ; FILE REFERENCE: 454312-2471
 ; CURRENT APPLICATION NUMBER: US/10/674,755
 ; CURRENT FILING DATE: 2003-09-30
 ; PRIOR APPLICATION NUMBER: US/09/147,875A
 ; PRIOR FILING DATE: 1999-05-24
 ; NUMBER OF SEQ ID NOS: 28
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 26
 ; LENGTH: 108
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 ; FEATURE:
 ; NAME/KEY: UNSURE
 ; LOCATION: (1)-(108)
 ; OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
 US-10-674-755-26

Query Match 78.3%; Score 414; DB 15; Length 108;
 Best Local Similarity 79.6%; Pred. No. 1.2e-22;
 Matches 86; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATDPGKTDQDELKGAEEAEELNKKVEALQNVAAEELSKLEDNLK 60

Db 1 LEKAELENLSTLDPGKTDQDELKGAEEAEELNKKVEALPNVAAEELSKLEDNLK 60
 QY 61 DAETNNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 108
 Db 61 DAETHNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 108

RESULT 12
 US-10-299-636-84
 ; Sequence 84, Application US/10299636
 ; Publication No. US20040077847A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Briles, David E
 ; APPLICANT: McDaniel, Larry S
 ; APPLICANT: Swiatlo, Edwin
 ; APPLICANT: Yother, Janet
 ; APPLICANT: Crain, Marilyn J
 ; APPLICANT: Hollingshead, Susan
 ; APPLICANT: Tart, Rebecca
 ; APPLICANT: Brooks-Walter, Alexis
 ; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
 ; FILE REFERENCE: 57909/361
 ; CURRENT APPLICATION NUMBER: US/10/299,636
 ; CURRENT FILING DATE: 2002-11-19
 ; PRIOR APPLICATION NUMBER: 08/714,741
 ; PRIOR FILING DATE: 1996-09-16
 ; PRIOR APPLICATION NUMBER: 08/529,055
 ; PRIOR FILING DATE: 1995-09-15
 ; NUMBER OF SEQ ID NOS: 111
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 84
 ; LENGTH: 185
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 ; FEATURE:
 ; NAME/KEY: UNSURE
 ; LOCATION: (45)
 ; OTHER INFORMATION: Xaa at position 45 is unknown
 US-10-299-636-84

Query Match 74.7%; Score 395; DB 15; Length 185;
 Best Local Similarity 77.9%; Pred. No. 5.1e-21;
 Matches 81; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

QY 5 ELELEKVLATDPGKTDQDELKGAEEAEELNKKVEALQNVAAEELSKLEDNLKDAET 64
 Db 4 KVNLENLSTLDPGKTDQDELKGAEEAEELNKKVEALPNVAAEELSKLEDNLKDAET 63
 QY 65 NNVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 108
 Db 64 NHVEDYIKEGLEEAIAIKKAELEKTKQELDAALNELGPDGDEEE 107

RESULT 13
 US-10-702-305A-18
 ; Sequence 18, Application US/10702305A
 ; Publication No. US20040213803A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Michael C. Chen
 ; APPLICANT: Chuang-Jiun Chiou
 ; APPLICANT: Zhongming Li
 ; APPLICANT: Dong-Sheng Chen
 ; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING OR
 ; PREVENTING PNEUMOCOCCAL INFECTION
 ; FILE REFERENCE: 12844-002001
 ; CURRENT APPLICATION NUMBER: US/10/702,305A
 ; CURRENT FILING DATE: 2003-11-06
 ; PRIOR APPLICATION NUMBER: US 60/424,497
 ; PRIOR FILING DATE: 2002-11-07
 ; NUMBER OF SEQ ID NOS: 26
 ; SOFTWARE: FastSeq for Windows Version 4.0
 ; SEQ ID NO 18

Db 276 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVQVALEEEELSKLEDNLK 335
QY 61 DAETNNVEDYIYKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 336 DAETNNVEDYIYKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 383

RESULT 6
US-10-674-755-23
; Sequence 23, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-23

Query Match 91.3%; Score 483; DB 15; Length 108;
Best Local Similarity 90.7%; Pred. No. 1.3e-27;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVQVALEEEELSKLEDNLK 60
Db 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKVVEALPNQVSELEEEELSKLEDNLK 60
QY 61 DAETNNVEDYIYKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 61 DAETNNVEDYIYKEGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 7
US-10-299-636-82
; Sequence 82, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 82
; LENGTH: 211
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-82

Query Match 91.3%; Score 483; DB 15; Length 211;
Best Local Similarity 90.7%; Pred. No. 2.7e-27;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVQVALEEEELSKLEDNLK 60
Db 25 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKVVEALPNQVSELEEEELSKLEDNLK 84
QY 61 DAETNNVEDYIYKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 85 DAETNNVEDYIYKEGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 132

RESULT 8
US-10-674-755-24
; Sequence 24, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-24

Query Match 88.3%; Score 467; DB 15; Length 108;
Best Local Similarity 88.9%; Pred. No. 1.9e-26;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVQVALEEEELSKLEDNLK 60
Db 1 LEKAGAGLENLLSTLDPEGKTQDELDKAAAEALNKVVEALPNQVSELEEEELSKLEDNLK 60
QY 61 DAETNNVEDYIYKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 61 DAETNNVEDYIYKEGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 9
US-10-299-636-83
; Sequence 83, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 83
; LENGTH: 212
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-83

Query Match 87.0%; Score 460; DB 15; Length 212;
Best Local Similarity 88.0%; Pred. No. 1.2e-25;

```
US-10-299-636-85
; Sequence 85, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 85
; LENGTH: 232
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-85

Query Match 100.0%; Score 529; DB 15; Length 232;
Best Local Similarity 100.0%; Pred. No. 1.5e-30;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 60
|
Db 51 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 110
|

Qy 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
|
Db 111 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 158
|

RESULT 3
US-10-414-532-1
; Sequence 1, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 1
; LENGTH: 275
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-1

Query Match 100.0%; Score 529; DB 16; Length 275;
Best Local Similarity 100.0%; Pred. No. 1.8e-30;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 60
Db 167 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 226
Qy 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
|

US-10-299-636-88
; Sequence 88, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 88
; LENGTH: 458
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-88

Query Match 100.0%; Score 529; DB 15; Length 458;
Best Local Similarity 100.0%; Pred. No. 3.1e-30;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 60
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Db 276 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 335
|

Qy 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
|
Db 336 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 383
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RESULT 5
US-10-414-532-26
; Sequence 26, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 26
; LENGTH: 653
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-26

Query Match 100.0%; Score 529; DB 16; Length 653;
Best Local Similarity 100.0%; Pred. No. 4.6e-30;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTQDELKKAABAEELNEKVEALQNVAELEELSLEDNLK 60
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 71.832 Seconds
(without alignments)
629.082 Million cell updates/sec

Title: US-10-674-755-25
Perfect score: 529
Sequence: 1 LEDAELEKVLATLDPEGK.....TQKELDAALNELGPDGDEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1867879 seqs, 418409474 residues

Total number of hits satisfying chosen parameters: 1867879

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

- Database : Published Applications AA:*
- 1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep.*
 - 2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep.*
 - 3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep.*
 - 4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep.*
 - 5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep.*
 - 6: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep.*
 - 7: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep.*
 - 8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep.*
 - 9: /cgn2_6/ptodata/1/pubpaa/US09A_PUBCOMB.pep.*
 - 10: /cgn2_6/ptodata/1/pubpaa/US09B_PUBCOMB.pep.*
 - 11: /cgn2_6/ptodata/1/pubpaa/US09C_PUBCOMB.pep.*
 - 12: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep.*
 - 13: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep.*
 - 14: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep.*
 - 15: /cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.pep.*
 - 16: /cgn2_6/ptodata/1/pubpaa/US10D_PUBCOMB.pep.*
 - 17: /cgn2_6/ptodata/1/pubpaa/US10E_PUBCOMB.pep.*
 - 18: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep.*
 - 19: /cgn2_6/ptodata/1/pubpaa/US11A_PUBCOMB.pep.*
 - 20: /cgn2_6/ptodata/1/pubpaa/US11_NEW_PUB.pep.*
 - 21: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep.*
 - 22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	529	100.0	108	15	US-10-674-755-25
2	529	100.0	232	15	US-10-299-636-85
3	529	100.0	275	16	US-10-414-532-1
4	529	100.0	458	15	US-10-299-636-88
5	529	100.0	653	16	US-10-414-532-26
6	483	91.3	108	15	US-10-674-755-23
7	483	91.3	211	15	US-10-299-636-82
8	467	88.3	108	15	US-10-674-755-24
9	460	87.0	212	15	US-10-299-636-83
10	455	86.0	106	15	US-10-674-755-22
11	414	78.3	108	15	US-10-674-755-26
12	395	74.7	185	15	US-10-299-636-84
13	361.5	68.3	459	16	US-10-702-305A-18
14	322.5	61.0	487	16	US-10-414-532-34
15	322.5	61.0	487	16	US-10-414-533-21
16	322.5	61.0	524	16	US-10-414-532-28
17	322	60.9	744	10	US-09-769-787-184
18	322	60.9	744	17	US-10-472-928-32
19	321	60.7	641	9	US-09-765-272-160
20	321	60.7	641	20	US-11-106-649-160
21	315	59.5	104	15	US-10-674-755-21
22	313	59.2	104	15	US-10-674-755-20
23	311.5	58.9	290	16	US-10-414-532-65
24	308	58.2	230	16	US-10-414-532-32
25	308	58.2	230	16	US-10-414-533-19
26	306	57.8	197	15	US-10-299-636-59
27	305	57.7	213	15	US-10-299-636-62
28	298.5	56.4	119	15	US-10-674-755-27
29	298.5	56.4	215	15	US-10-299-636-58
30	293	55.4	102	15	US-10-674-755-18
31	282.5	53.4	233	15	US-10-299-636-67
32	233	44.0	80	15	US-10-674-755-19
33	206	38.9	354	15	US-10-299-636-105
34	206	38.9	588	15	US-10-299-636-96
35	206	38.9	619	10	US-09-882-774-1
36	206	38.9	619	15	US-10-282-122A-73702
37	206	38.9	619	16	US-10-414-532-72
38	205	38.8	204	15	US-10-299-636-66
39	201.5	38.0	99	15	US-10-674-755-11
40	197.5	37.3	100	15	US-10-674-755-12
41	196	37.1	198	15	US-10-299-636-76
42	185	35.0	141	14	US-10-254-995-2
43	185	35.0	589	9	US-09-748-875-14
44	185	35.0	589	10	US-09-298-523B-14
45	185	35.0	589	15	US-10-299-636-97

ALIGNMENTS

RESULT 1
US-10-674-755-25
; Sequence 25, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-25

Query Match	100.0%	Score 529;	DB 15;	Length 108;
Best Local Similarity	100.0%;	Pred. No. 6.5e-31;		
Matches 108;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;
Qy	1	LED AELEKVLATLDPEGKTQDELKAEAELEKVEALQNVAELEELSKLEDNLK	60	
Db	1	LED AELEKVLATLDPEGKTQDELKAEAELEKVEALQNVAELEELSKLEDNLK	60	
Qy	61	DAETNNVEDYIKEGLEAEIATKKALEKTKQELDAALNELGPDGDEEE	108	
Db	61	DAETNNVEDYIKEGLEAEIATKKALEKTKQELDAALNELGPDGDEEE	108	

RESULT 2


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Query Match          91.3%; Score 483; DB 4; Length 108;
Best Local Similarity 90.7%; Pred. No. 9.3e-35;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTODELDKEAAAEINKEVLEALONQVAEELEELSKLEDNLK 60
Db 1 LEKAAELENLLSTLDPEGKTODELDKEAAAEINKEVLEALPNQVSELEELSKLEDNLK 60

Qy 61 DAETNNVEDYIKEGLEEAIATKKAELKTKQKELDAALNELGPDGDEEE 108
Db 61 DAETNNVEDYIKEGLEEAIATKKAELKTKPKELDAAALNELGPDGDEEE 108

RESULT 8
US-08-529-055-67
; Sequence 67, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 67:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 211 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-67

Query Match          91.3%; Score 483; DB 4; Length 211;
Best Local Similarity 90.7%; Pred. No. 2e-34;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

Qy 1 LEDAELEKVLATLDPEGKTODELDKEAAAEINKEVLEALONQVAEELEELSKLEDNLK 60
Db 25 LEKAAELENLLSTLDPEGKTODELDKEAAAEINKEVLEALPNQVSELEELSKLEDNLK 84

Qy 61 DAETNNVEDYIKEGLEEAIATKKAELKTKQKELDAALNELGPDGDEEE 108
Db 85 DAETNNVEDYIKEGLEEAIATKKAELKTKPKELDAAALNELGPDGDEEE 132

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RESULT 9
US-08-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent in Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-08-147-875A-24

Query Match          88.3%; Score 467; DB 4; Length 108;
Best Local Similarity 88.9%; Pred. No. 2.2e-33;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

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Db 1 LEKAAELENLLSTLDPEGKTODELDKEAAAEINKEVLEALPNQVSELEELSKLEDNLK 60

Qy 61 DAETNNVEDYIKEGLEEAIATKKAELKTKQKELDAALNELGPDGDEEE 108
Db 61 DAETNNVEDYIKEGLEEAIATKKAELKTKPKELDAAALNELGPDGDEEE 108

RESULT 10
US-08-529-055-68
; Sequence 68, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 68:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 212 amino acids

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Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVAALEEEELSKLEDNLK 60
Db LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVAALEEEELSKLEDNLK 335

QY 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 108
Db DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 383

RESULT 5
US-08-714-741-32
; Sequence 32, Application US/08714741
; Patent No. 6500613
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS THEREOF,
; TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM, AND USES OF SUCH GENES,
; TITLE OF INVENTION: PORTIONS AND PRODUCTS
; NUMBER OF SEQUENCES: 47
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: U.S.
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/714,741
; FILING DATE: 16-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-714-741-32

Query Match 100.0%; Score 529; DB 4; Length 8991;
Best Local Similarity 100.0%; Pred. No. 1.7e-36;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVAALEEEELSKLEDNLK 60
Db LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVAALEEEELSKLEDNLK 8674

QY 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 108
Db DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 8722

RESULT 6
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match 91.3%; Score 483; DB 2; Length 108;
Best Local Similarity 90.7%; Pred. No. 9.3e-35;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNEKVEALQNVAALEEEELSKLEDNLK 60
Db 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNEKVEALPNQVSELEEEELSKLEDNLK 60

QY 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 108
Db DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEE 108

RESULT 7
US-09-147-875A-23
; Sequence 23, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147.875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-23

Query Match 100.0%; Score 529; DB 4; Length 458;
Best Local Similarity 100.0%; Pred. No. 5.3e-38;

Result No.	Query			ID	Description	
	Score	Match	Length			
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2	529	100.0	108	4	US-09-147-875A-25	Sequence 25, Appl
3	529	100.0	232	4	US-08-529-055-70	Sequence 70, Appl
4	529	100.0	458	4	US-08-529-055-73	Sequence 73, Appl
5	529	100.0	8991	4	US-08-714-741-32	Sequence 32, Appl
6	483	91.3	108	2	US-08-710-749-26	Sequence 26, Appl
7	483	91.3	108	4	US-09-147-875A-23	Sequence 23, Appl
8	483	91.3	211	4	US-08-529-055-67	Sequence 67, Appl
9	467	88.3	108	4	US-09-147-875A-24	Sequence 24, Appl
10	460	87.0	212	4	US-08-529-055-68	Sequence 68, Appl
11	457	86.4	108	2	US-08-710-749-22	Sequence 22, Appl
12	457	86.4	108	2	US-08-710-749-23	Sequence 23, Appl
13	455	86.0	106	4	US-09-147-875A-22	Sequence 22, Appl
14	414	78.3	108	2	US-08-710-749-25	Sequence 25, Appl
15	414	78.3	108	4	US-09-147-875A-26	Sequence 26, Appl
16	395	74.7	185	4	US-08-529-055-69	Sequence 69, Appl
17	321	60.7	641	3	US-08-961-083-160	Sequence 160, App
18	321	60.7	641	4	US-09-536-784-160	Sequence 160, App
19	315	59.5	104	4	US-09-147-875A-21	Sequence 21, Appl
20	313	59.2	104	2	US-08-710-749-19	Sequence 19, Appl
21	313	59.2	104	4	US-09-147-875A-20	Sequence 20, Appl
22	309	58.4	104	2	US-08-710-749-20	Sequence 20, Appl
23	306	57.8	197	4	US-08-529-055-44	Sequence 44, Appl
24	305	57.7	213	4	US-08-529-055-47	Sequence 47, Appl
25	298.5	56.4	119	2	US-08-710-749-27	Sequence 27, Appl
26	298.5	56.4	119	4	US-09-147-875A-27	Sequence 27, Appl
27	298.5	56.4	215	4	US-08-529-055-43	Sequence 43, Appl

Db	76	LAKQTELEKLLDNLDPEGKTODELDKEAAEALDKADELQNKVADLEKEISNLEILLG	135
Qy	61	DAETNNVEDYIKEGLEEAIATKKAELEKTOKELDAALNELGPDGDEEE	108
Db	136	GADP---ED-DTAALQNKLATYKAELEKTOKELDAALNELGPDGDEEE	179

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Job time : 64.0187 secs

OC	Streptococcus.
OX	NCBI_TaxID=1313;
RN	[1]
RP	SEQUENCE FROM N.A.
RC	STRAIN=43;
RX	MEDLINE=20472698; PubMed=11015380;
RA	Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT	"Pneumococcal psppA sequence types of prevalent multiresistant
RT	pneumococcal strains in the United States and of internationally
RT	disseminated clones.";
RL	J. Clin. Microbiol. 38:3663-3669(2000).
RN	[2]
RP	SEQUENCE FROM N.A.
RC	STRAIN=43;
RA	Beall B.W.;
RT	Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR	EMBL; AP255543; AAF68096.1; -.
DR	HSSP; P04268; IIC2.
FT	NON_TER 1
FT	NON TER 222 222
SQ	SEQUENCE 222 AA; 23952 MW; 4824321A80C658B0 CRC64;
Query Match 61.7%; Score 326.5; DB 2; Length 222;	
Best Local Similarity 67.0%; Pred. No. 1.4e-10;	
Matches 75; Conservative 12; Mismatches 16; Indels 9; Gaps 3;	
OY	2 EDAAE-----LEKVLATLDPEGKTQDELDPKEAAAEINKEVVALONQVAELEBEELSKLE 56 : :
Db	28 KQELAKKQTGLEKLDSLDPEGKTQDELDPKEAAAEINKEVVALONQVAELEBEELSKLE 87 : :
OY	57 DNLKDATTNNVDYIKEGLEEAATKAEELEKTKELDAALNELGPDGDDEE 108 : :
Db	88 ILIIGGADP---ED-DTAAQLQNKLATTKAEELEKTKELDAALNELGPDGDDEE 135 : :
RESULT 15	
OYLS79	PRELIMINARY; PRT; 231 AA.
ID	O9LS79
AC	O9LS79;
DT	01-OCT-2000 (TrEMBLrel. 15, Created)
DT	01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT	01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
GN	PspA (Fragment).
GN	Name=pspA;
OS	Streptococcus pneumoniae.
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC	Streptococcus.
OX	NCBI_TaxID=1313;
RN	[1]
RP	SEQUENCE FROM N.A.
RC	STRAIN=20;
RX	MEDLINE=20472698; PubMed=11015380;
RA	Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT	"Pneumococcal psppA sequence types of prevalent multiresistant
RT	pneumococcal strains in the United States and of internationally
RT	disseminated clones.";
RL	J. Clin. Microbiol. 38:3663-3669(2000).
RN	[2]
RP	SEQUENCE FROM N.A.
RC	STRAIN=20;
RA	Beall B.W.;
RT	Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR	EMBL; AP255548; AAF68101.1; -.
DR	HSSP; P04269; IIC2.
FT	NON_TER 1
FT	NON TER 231 231
SQ	SEQUENCE 231 AA; 24990 MW; A7731F3A46460186 CRC64;
Query Match 61.2%; Score 324; DB 2; Length 231;	
Best Local Similarity 66.7%; Pred. No. 2.1e-10;	
Matches 72; Conservative 12; Mismatches 20; Indels 4; Gaps 2;	
OY	1 LEDAAELEKVLATLDPEGKTQDELDPKEAAAEINKEVVALONQVAELEBEELSKLEDNLK 60 : :

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DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC6303;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071820; AAF2715.1; -.
FT NON_TER 461
SQ SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;

Query Match 72.9%; Score 385.5; DB 2; Length 461;
Best Local Similarity 68.1%; Pred. No. 1.9e-13;
Matches 81; Conservative 12; Mismatches 15; Indels 11; Gaps 2;

Oy 1 LEDAELEKVLATLDPEGKTQDELDKAAE-----AELNEKVEALQNOVALEELSKLE 56
Db 273 LEDAELEKVLATLDPEGKTQDELDKAAEDANTEALQNKVADLENKVAELDKVETRLQ 332

Oy 57 DNLKDAETNNVEDYIKEGLEEAIAATKKAELEKT-----KELDAALNELGPGDDEE 108
Db 333 SLDKAEENNVEDYVKEGLDKALTDKKVELNNTQKALDTAQNALDTALNELGPGDDEE 391

RESULT 10
O9KGS0 PRELIMINARY; PRT; 227 AA.
AC Q9KGS0;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RA Beall B.W.;
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF288751; AAF91495.1; -.
FT NON_TER 1
FT NON_TER 227
SQ SEQUENCE 227 AA; 24994 MW; 9D24C706228052A6 CRC64;

Query Match 72.3%; Score 382.5; DB 2; Length 227;
Best Local Similarity 67.2%; Pred. No. 1.4e-13;
Matches 80; Conservative 13; Mismatches 15; Indels 11; Gaps 2;

Oy 1 LEDAELEKVLATLDPEGKTQDELDKAAE-----AELNEKVEALQNOVALEELSKLE 56
Db 23 LEDAELEKVLATLDPEGKTQDELDKAAEDANTEALQNKVADLENKVAELDKVETRLQ 82

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Oy 57 DNLKDAETNNVEDYIKEGLEEAIAATKKAELEKT-----KELDAALNELGPGDDEE 108
Db 83 SLDKAEENNVEDYVKEGLDKALTDKKVELNNTQKALDTAQNALDTALNELGPGDDEE 141

RESULT 11
O8GNT0 PRELIMINARY; PRT; 211 AA.
AC O8GNT0;
DT 01-MAR-2003 (TrEMBLrel. 23, Created)
DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP95;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicunzo G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
RA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
Italian patients.";
RL J. Clin. Microbiol. 40:3660-3665(2002).
DR EMBL; AF490265; AAN37733.1; -.
FT NON_TER 1
FT NON_TER 211
SQ SEQUENCE 211 AA; 23207 MW; 096BFBE0B8CD6483 CRC64;

Query Match 68.5%; Score 362.5; DB 2; Length 211;
Best Local Similarity 63.9%; Pred. No. 1.6e-12;
Matches 76; Conservative 14; Mismatches 18; Indels 11; Gaps 2;

Oy 1 LEDAELEKVLATLDPEGKTQDELDKAAE-----AELNEKVEALQNOVALEELSKLE 56
Db 5 LEKAEAELELLSLDPEGKTQDELDKAAEDVNIEALQNKVADLENKVAELDKVETRLQ 64

Oy 57 DNLKDAETNNVEDYIKEGLEEAIAATKKAELEKT-----KELDAALNELGPGDDEE 108
Db 65 SLDKAEENNVEDYVKEGLDKALTDKKVELNNTQKALDTAQNALDTALNELGPGDDEE 123

RESULT 12
O9L594 PRELIMINARY; PRT; 257 AA.
AC Q9L594;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254255; AAF68090.1; -.

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Qy	61	DAETNNVEDYIKGLEEAIAATKKALEKTOKELDAALNELGPDGDDEE	100
Dd	355	DAETNNVEDYIKGLEEAIAATKKALEKTOKELDAALNELGPDGDDEE	402
RESULT 4			
Q9LAX5 PRELIMINARY; PRT; 481 AA.			
ID	Q9LAX5		
AC	Q9LAX5		
DT	01-OCT-2000 (TrEMBLrel. 15, Created)		
DT	01-OCT-2000 (TrEMBLrel. 15, Last sequence update)		
DT	01-OCT-2003 (TrEMBLrel. 25, Last annotation update)		
DE	PspA (Fragment).		
DE	Name=pspA;		
GN	Name=pspA;		
OS	Streptococcus pneumoniae.		
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;		
OC	Streptococcus.		
OX	NCBI_TaxID=1313;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=BG11703;		
RX	MEDLINE=20448953; PubMed=10992499;		
RX	DOI=10.1128/JAI.68.10.5889-5900.2000;		
RX	Hollingshead S.K., Becker R., Briles D.E.;		
RT	"Diversity of PspA: mosaic genes and evidence for past recom-		
RT	bination in Streptococcus pneumoniae."		
RL	Infect. Immun. 68:5889-5900(2000) .		
RL	EMBL; AF071821; AAF27716.1; -.		
RD	HSSP: P58301; IL8D.		
RD	NON TER		
FT	481		
FT	SEQUENCE 481 AA; 53500 MW; EA3C66445BFCE2B CRC64;		
SQ			
Query Match 94.1%; Score 498; DB 2; Length 481;			
Best Local Similarity 93.5%; Pred. No. 1.7e-19;			
Matches 101; Conservative 4; Mismatches 3; Indels			

Db	295	LEKAAELENLLSLDPEGKTQDELDKAAAEALNKKVEALQNVALEEEEL	
QY	61	DAETNNVEDYIKGLEEAIATKKALEKTKQKELDAALNELGPDGDDEE	108
Db	355	DAETNNVEDYIKGLEEAIATKQAELEKTKQKELDAALNELGPDGDDEE	402
RESULT 5			
Q8KQK2		PRELIMINARY;	PRT; 107 AA.
ID	Q8KQK2		
AC	Q8KQK2;		
DT	01-OCT-2002 (TrEMBLrel. 22, Created)		
DT	01-OCT-2002 (TrEMBLrel. 22, Last sequence update)		
DT	01-OCT-2002 (TrEMBLrel. 22, Last annotation update)		
DE	Pneumococcal surface protein A (Fragment).		
GN	Name=pspa;		
OS	Streptococcus pneumoniae.		
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;		
OC	Streptococcus.		
NCBI_TaxID=1313;			
RN	[1]		
RP	SEQUENCE FROM N.A.		
RC	STRAIN=255/00;		
RX	MEDLINE=22170754; PubMed=2183557;		
RR	DOI=10.1128/IAI.70.9.5086-5090.2002;		
RA	Miyaji E.N., Ferreira D.M., Lopes A.P.Y., Brandileone M.C.C.,		
RA	Dias W.O., Leite L.C.;		
RT	"Analysis of serum cross-reactivity and cross-protection elic-		
RT	immunization with DNA vaccines against Streptococcus pneumoni-		
RT	expressing PspA fragments from different clades.";		
RL	Infect. Immun. 70:5086-5090(2002).		
DR	EMBL; AY082390; AAL592495.1; -.		
FT	NON TER 1		
FT	NON TER 107		

	Query Match	94.1%	Score 498;	DB 2;	Length 479;	RT Analysis of serum cross-reactivity and cross-protection elicited by Dias w.O., Leite M.C.C.
	Best Local Similarity	93.5%	Pred. No. 1.7e-19;			RT immunization with DNA vaccines against Streptococcus pneumoniae
	Marches 101:	Conservative	4:	Mismatches 3:	Indels 0:	RT expressing PspA fragments from different clades."

Result No.	Query			DB	ID	Description
	Score	Match	Length			
1	529	100.0	653	2	Q34097	streptococc
2	502	94.9	246	2	Q915B4	streptococ
3	498	94.1	479	2	Q91AX2	streptococc
4	498	94.1	481	2	Q91LX5	streptococc
5	497	94.0	107	2	Q8XQK2	streptococc
6	473	89.4	480	2	Q91LX3	streptococc
7	467	88.3	213	2	Q8GNS7	streptococc
8	385.5	72.9	256	2	Q91595	streptococc
9	385.5	72.9	461	2	Q91LX6	streptococc
10	382.5	72.3	227	2	Q9XGS0	streptococc
11	362.5	68.5	211	2	Q8GNT0	streptococc
12	362.5	68.5	257	2	Q91594	streptococc
13	339	64.1	242	2	Q91562	streptococc
14	326.5	61.7	222	2	Q91584	streptococc
15	324	61.2	231	2	Q91579	streptococc
16	324	61.2	241	2	Q91580	streptococc
17	322	60.9	228	2	Q915B8	streptococc
18	322	60.9	235	2	Q91582	streptococc
19	322	60.9	249	2	Q915D4	streptococc
20	322	60.9	252	2	Q91583	streptococc
21	322	60.9	360	2	Q8XQK3	streptococc
22	322	60.9	429	2	Q91AX7	streptococc
23	322	60.9	526	2	Q91AX9	streptococc
24	322	60.9	608	2	Q8VQ55	streptococc
25	322	60.9	744	2	Q97T39	streptococc
26	320	60.5	249	2	Q915B7	streptococc
27	320	60.5	502	2	Q91LX8	streptococc
28	319	60.3	249	2	Q91585	streptococc
29	319	60.3	256	2	Q91590	streptococc
30	312.5	59.1	209	2	Q91593	streptococc
31	215	40.6	117	2	Q91AY3	streptococc

Search completed: November 17, 2005, 20:39:53
Job time : 15.1144 secs

C:Species: Homo sapiens (man)
C>Date: 17-May-1996 #sequence revision 17-May-1996 #text change 09-Jul-2004
C:Accession: I38055; JH0154; S12459; S09332; A30220; S49478
R:Jullian, E.H.; Kelly, A.M.; Pompidou, A.J.; Hoffman, R.; Schiaffino, S.; Stedman, H.H.
Eur. J. Biochem. 230, 1001-1006, 1995
A>Title: Characterization of a human perinatal myosin heavy-chain transcript.
A:Reference number: I38055; MUID:95324556; PMID:7601129
A:Accession: I38055
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-1937 <RES>
A:Cross-references: UNIPROT:P13535; EMBL:Z38133; NID:g558668; PIDN:CAA86293.1; PID:g5586
R:Karsch-Mizrachi, I.; Feghali, R.; Shows, T.B.; Leinwand, L.A.
Gene 89, 289-294, 1990
A>Title: Generation of a full-length human perinatal myosin heavy-chain-encoding cDNA.
A:Reference number: JH0154; MUID:90323631; PMID:2373371
A:Accession: JH0154
A:Molecule type: mRNA
A:Residues: 1-14, 'A', 16-859 <KAR>
A:Cross-references: GB:Y00821
A:Experimental source: skeletal muscle
R:Bober, E.
submitted to the EMBL Data Library, January 1989
A:Reference number: S12458
A:Accession: S12459
A:Molecule type: mRNA
A:Residues: 502-1071, 'N', 1073-1250, 'DGG', 1253-1376, 'NT', 1379-1913, 'D', 1915-1937 <BOB>
A:Cross-references: EMBL:X51592; NID:g29465; PIDN:CAA35941.1; PID:g29466
A:Experimental source: clone gthc-F
R:Bober, E.; Buchberger-Seidl, A.; Braun, T.; Singh, S.; Goedde, H.W.; Arnold, H.H.
Eur. J. Biochem. 189, 55-65, 1990
A>Title: Identification of three developmentally controlled isoforms of human myosin hea
A:Reference number: S09331; MUID:90235862; PMID:1691980
A:Accession: S09332
A:Molecule type: mRNA
A:Residues: 502-547, 'X', 549-617, 'X', 619-687, 'X', 689-757, 'X', 759-827, 'X', 829-897, 'X', 899-
-1376, 'NT', 1379-1386, 'X', 1388-1456, 'X', 1458-1526, 'X', 1528-1596, 'X', 1598-1666, 'X', 1668-17
A:Cross-references: EMBL:X51592
R:Feghali, R.; Leinwand, L.A.
J. Cell Biol. 108, 1791-1797, 1989
A>Title: Molecular genetic characterization of a developmentally regulated human perinat
A:Reference number: A30220; MUID:89234168; PMID:2715179
A:Accession: A30220
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 860-969, 'Q', 971-1246, 'H', 1248-1260, 'G', 1262-1296, 'Q', 1298-1503, 'AH', 1506-184
A:Cross-references: GB:Y00821; NID:g34863; PIDN:CAA68757.1; PID:g34864
C:Genetics:
A:Gene: GDB:MYH8
A:Cross-references: GDB:125267; OMIM:160741
A:Map position: 17pter-17p12
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: actin binding; ATP; coiled coil; hydrolase; muscle contraction; nucleotide b
F:91-769/Domain: myosin motor domain homology <MMOT>
F:91-188/Region: nucleotide-binding motif A (P-loop)
F:551-588/Region: actin binding #status predicted
F:658-680/Region: actin binding #status predicted
F:842-1282/Region: S2 #status predicted
F:698,708/Active site: Cys #status predicted

Query Match 21.6%; Score 114.5; DB 2; Length 1937;
Best Local Similarity 34.8%; Pred. No. 20;
Matches 40; Conservative 19; Mismatches 43; Indels 13; Gaps 4;
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Db 847 ETEKMATMKEEFQTKDELAKSEAKRKELEEKVMTLLKERNDLQLQVQSEADSLADAE 906
Qy 65 N-----NVEDYIKGEELEAIAATKK--AELEKTQKELDAALNELPGDGDDEE 108
Db 907 REQLIKNKIQLEAKIKVEITERAEEREEINEAELTAKKRKLEDECSLKKDIDDL 961

RESULT 13
JC5421
smooth muscle myosin heavy chain 2 - mouse
C:Species: Mus musculus (house mouse)
C>Date: 10-Jun-1997 #sequence_revision 18-Jul-1997 #text_change 09-Jul-2004
C:Accession: JC5421
R:Hasegawa, K.; Arakawa, E.; Oda, S.; Matsuda, Y.
Biochem. Biophys. Res. Commun. 232, 313-316, 1997
A>Title: Molecular cloning and expression of murine smooth muscle myosin heavy chains.
A:Reference number: JC5420; MUID:97242182; PMID:9125171
A:Accession: JC5421
A:Molecule type: mRNA
A:Residues: 1-1938 <HAS>
A:Cross-references: UNIPROT:O08638; DDBJ:D85924; NID:g1945079; PIDN:BAA19691.1; PID:g194
A:Experimental source: smooth muscle
C:Comment: This protein plays a role in smooth muscle cell contraction.
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: nucleotide binding; P-loop
F:88-771/Domain: myosin motor domain homology <MMOT>
F:178-185/Region: nucleotide-binding motif A (P-loop)

Query Match 21.6%; Score 114; DB 2; Length 1938;
Best Local Similarity 33.9%; Pred. No. 21;
Matches 43; Conservative 16; Mismatches 42; Indels 26; Gaps 5;
Qy 2 EDAAELELEKVLATLDP-
Db 1559 EDAKLRLEVNQAL-----KGQFERDLQARDQNEEKRRQLQRLHHEYETELEDERKQKAL 1614
Qy 53 -----SKLENDLKDAETNNVEDYIKGEELEAIAATKK---AELEKTQKELD---AALNELG 101
Db 1615 AAAAKKLEGLDKDLELQ--ADSAIKGFEAAIKQLRKLAQMKQFQRELDARASRDIF 1672
Qy 102 PDGDDEE 108
Db 1673 ATSKENE 1679

RESULT 14
JC5420
smooth muscle myosin heavy chain 1 - mouse
C:Species: Mus musculus (house mouse)
C>Date: 10-Jun-1997 #sequence_revision 18-Jul-1997 #text_change 09-Jul-2004
C:Accession: JC5420
R:Hasegawa, K.; Arakawa, E.; Oda, S.; Matsuda, Y.
Biochem. Biophys. Res. Commun. 232, 313-316, 1997
A>Title: Molecular cloning and expression of murine smooth muscle myosin heavy chains.
A:Reference number: JC5420; MUID:97242182; PMID:9125171
A:Accession: JC5420
A:Molecule type: mRNA
A:Residues: 1-1972 <HAS>
A:Cross-references: UNIPROT:O08638; DDBJ:D85923; NID:g1945077; PIDN:BAA19690.1; PID:g194
A:Experimental source: smooth muscle
C:Comment: This protein plays a role in smooth muscle cell contraction.
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: nucleotide binding; P-loop
F:88-771/Domain: myosin motor domain homology <MMOT>
F:178-185/Region: nucleotide-binding motif A (P-loop)

Query Match 21.6%; Score 114; DB 2; Length 1972;
Best Local Similarity 33.9%; Pred. No. 22;
Matches 43; Conservative 16; Mismatches 42; Indels 26; Gaps 5;
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Db 1559 EDAKLRLEVNQAL-----KGQFERDLQARDQNEEKRRQLQRLHHEYETELEDERKQKAL 1614
Qy 53 -----SKLENDLKDAETNNVEDYIKGEELEAIAATKK---AELEKTQKELD---AALNELG 101
Db 1615 AAAAKKLEGLDKDLELQ--ADSAIKGFEAAIKQLRKLAQMKQFQRELDARASRDIF 1672
Qy 102 PDGDDEE 108
Db 1673 ATSKENE 1679

A:Accession: S07827
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 176-621 <BA2>
A:Cross-references: EMBL:X16262
A:Experimental source: Sprague-Dawley; smooth muscle; clone RAMHC21
C:Comment: For an alternate splice form see (PIRS07537).
C:Superfamily: myosin heavy chain; myosin motor domain homology

Query Match 21.7%; Score 115; DB 2; Length 621;
Best Local Similarity 33.9%; Pred. No. 6;
Matches 43; Conservative 16; Mismatches 42; Indels 26; Gaps 5;

QY 2 EDAAELEKVLATLPDPEKGTQDELKAAAEALNEKVAELNQVALEBEEL-----52
DB 208 EDAAKLRLEVNMQAL----KGQFDRDQARDEQNEEKRRQLQRLHVEYTELEDERKQKRAL 263
QY 53 -----SKLEDNLKDAETNNVEDYIKEGLEEAIAATKK--AALEKTKQKELD--RAALNELG 101
DB 264 AAAAKKLEGLDKLELQ--ADSAVKGREEAIKQLKLAQKQKQFRELDDARASRDEIF 321
QY 102 PDGDEEE 108
DB 322 ATSKENE 328

RESULT 9
S29795
hypothetical protein 2280 - evening primrose (Oenothera picensis subsp. picensis) chloro
C:Species: chloroplast Oenothera picensis subsp. picensis (evening primrose)
C:Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 09-Jul-2004
C:Accession: S29795; S19983
R:Nimzyk, R.; Schoendorf, T.; Hachtel, W.
Curr. Genet. 23, 265-270, 1993
A:Title: In-frame length mutations associated with short tandem repeats are located in u
A:Reference number: S29795; MUID:93169690; PMID:8435856
A:Accession: S29795
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A:Residues: 1-721 <NIM>
A:Cross-references: UNIPROT:P31568; EMBL:X64616; NID:g14334; PID:g14335
C:Genetics:
A:Genome: chloroplast
C:Keywords: Chloroplast

Query Match 21.6%; Score 114.5; DB 2; Length 721;
Best Local Similarity 28.8%; Pred. No. 7.4;
Matches 36; Conservative 21; Mismatches 45; Indels 23; Gaps 4;

QY 6 LELEKVLATLPD-----EGK-----TQDELK--KEAAAEALNEKVAELNQVALEBEEL 52
DB 170 LELEGALVGSSPTSEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEV 229
QY 53 SKLEDNL-----KDAETNNVEDYIKEGLEEAIAATKKAELEKTKQKELDAAALNELGP 102
DB 230 EGTEEEVGTEEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEVEGTEEEVEG 289
QY 103 DGDEE 107
DB 290 TEDEE 294

RESULT 10
A59234
slow myosin heavy chain 3 - quail
C:Species: Coturnix coturnix
C:Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 08-Sep-2000
C:Accession: A59234
R:Nikovic Jr., W.; Wang, G.F.; Feldman, J.L.; Miller, J.B.; Wade, R.; Nelson, L.; Stock
J. Biol. Chem. 271, 17047-17056, 1996
A:Title: Isolation and characterization of an avian slow myosin heavy chain gene expres
A:Reference number: A59234; MUID:96291845; PMID:8663323
A:Accession: A59234
A:Status: preliminary; not compared with conceptual translation

A:Molecule type: mRNA
A:Residues: 1-1931 <NIK>
A:Cross-references: GB:U53862; NID:g1289513; PIDN:AAC59912.1; PID:g1289514
C:Superfamily: myosin heavy chain; myosin motor domain homology
F:81-761/Domain: myosin motor domain homology <MMO>

Query Match 21.6%; Score 114.5; DB 2; Length 1931;
Best Local Similarity 34.4%; Pred. No. 20;
Matches 43; Conservative 19; Mismatches 36; Indels 27; Gaps 7;

QY 1 LEAAELELEKV--LATL-----DPEGKTODE-----LDKEAAAEALNEKVAELNQV 45
DB 1002 LDDQAAEDKNTVLAKAKVKLEQQADDESSLOQEKIRMDLERAKRKLEGLDKLADES 1061
QY 46 AELEFEELSLEDNLI--KDAETNNVEDYIKEGLEEAIAATKKAELEKTKQKELDAAALNELGPD 103
DB 1062 MDLENDQQLLEERLKKDFELNTLNARIED--EQAIA--AQLQKLELQARIEEL--- 1113
QY 104 GDDEE 108
DB 1114 --EEE 1116

RESULT 11
148153
myosin heavy chain beta, cardiac muscle [similarity] - golden hamster
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 09-Jul-2004
C:Accession: 148153; A28298
R:Wang, R.; Sole, M.J.; Cukerman, E.; Liew, C.C.
J. Mol. Cell. Cardiol. 26, 1155-1165, 1994
A:Title: Characterization and nucleotide sequence of the cardiac alpha-myosin heavy chai
A:Reference number: 148153; MUID:95115033; PMID:7815459
A:Accession: 148153
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-1934 <RES>
A:Cross-references: UNIPROT:P13540; GB:L12104; NID:g402371; PIDN:AAA62313.1; PID:g402372
R:Jandreski, M.A.; Sole, M.J.; Liew, C.C.
Nucleic Acids Res. 16, 4737, 1988
A:Title: Sequence of cDNA encoding the Syrian hamster cardiac beta-myosin heavy chain.
A:Reference number: A28298; MUID:88247788; PMID:3380703
A:Accession: A28298
A:Molecule type: mRNA
A:Residues: 962-965, 'E', 967-980, 'E', 981-985, 'Q', 987-1007, 'A', 1009, 'E', 1011, 'RKT', 1015-10
536, 'L', 1538-1555, 'K', 1557-1934 <JAN>
A:Cross-references: GB:X07273; NID:G49640; PIDN:CAA30256.1; PID:G49641
A:Note: the authors translated the codon GTG for residue 1504 as Leu
C:Genetics:
A:Introns: 667/3; 114/3; 167/1; 176/2; 212/3; 243/3; 255/1; 298/1; 322/3; 379/1; 418/3; 4
23/3; 1389/2; 1450/3; 1506/1; 1547/3; 1650/3; 1718/3; 1760/3; 1852/3; 1884/3; 1929/3
C:Superfamily: myosin heavy chain; myosin motor domain homology
C:Keywords: actin binding; ATP; cardiac muscle; coiled coil; heart; muscle; nucleotide b
F:87-765/Domain: myosin motor domain homology <MMOT>
F:177-184/Region: nucleotide-binding motif A (P-loop)

Query Match 21.6%; Score 114.5; DB 2; Length 1934;
Best Local Similarity 33.0%; Pred. No. 20;
Matches 38; Conservative 21; Mismatches 43; Indels 13; Gaps 4;

QY 7 ELEKVLATLPDPE--GKTODELK--EAAAEALNEKVAELNQVALEFEELSLEDNLKDAET 64
DB 843 ETEKEMATMKEEFGFGRVKDALEKSEARKKELEEKVMSLQEKNDLQLOQVAFQDNLADAE 902
QY 65 N-----NVEDYIKEGLE--EAIATKKAELKTKQKELDAAALNELGPDGDEE 108
DB 903 RCDQLINKKIQLEAKVKEMTERLEDEEEMNAELTAKRKLEDECSSELKROIDDLE 957

RESULT 12
138055
myosin heavy chain, perinatal skeletal muscle - human
N:Contains: myosin ATPase (EC 3.6.4.1)

```

50
Qy 6 LELEKVLAA--TLDPGKQTQDELQK-----AAEAELNEKVEALQNVAAELEEELSLEEDN 50
Db 306 LEWERLVAIPETPDGNGKSGPESVTEVVVPSENSLASEVLTSTRTKELEEKLEKLE-- 363
Qy 59 LKDAETNNVEDYIKEGLEBEAI-----ATKAAELEKTKQELDAALNEL 100
Db 364 ---AEKHELENEVKCNREAAVHHIENSEVLTSTRTKELEEKLEKLEAEKKEEL 411

```

RESULT 7
S07537
myosin heavy chain, smooth muscle, splice form 2 - rat (fragment)
C:Species: Rattus norvegicus (Norway rat)
C:Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 09-Jul-2004
C:Accession: S07537; S10449
R:Babji, P.; Periasamy, M.
J. Mol. Biol. 210, 673-679, 1989
A:Title: Myosin heavy chain isoform diversity in smooth muscle is produced by
A:Reference number: S07537; PMID:90133920; PMID:2614841

A; Molecule type: mRNA
A; Residues: 134-412 <BA2>
A; Cross-references: EMBL:X16261; NID:G56648; PID:CAA34347.1; PID:G56649
A; Experimental source: Sprague-Dawley; smooth muscle; clone RAMHC15
C; Comment: For an alternate splice form see (PIR:S10450).
C; Superfamily: myosin heavy chain; myosin motor domain homology
C; Keywords: alternative splicing; ATP; cardiac muscle; heart; muscle

[illegible]

R; Babji, P.; Periasamy, M.
J. Mol. Biol. 210, 673-679, 1989
A; Title: Myosin heavy chain isoform diversity in smooth muscle is produced by
A; Reference number: S07537; MUID: 90133920; PMID: 2614841

RESULT 4
S03166
myosin heavy chain, gizzard smooth muscle [similarity] - chicken

Query Match	22.1%	Score 117;	DB 1;	Length 1979;
Best local Similarity	30.6%;	Pred. No. 14;		
Matches	38;	Conservative 24;	Mismatches 30;	Indels 32; Caps 5;
Qy	4	AELEKVLATLDPEGTQDELQK----	EAAEAEELNEKVEALQNOVAELEEELS	KLEDN 58
Db	1043	SELEVR-----	LKKEKSRQELSEKIKRKLGESSD	HEQIAELQAQIAELKALAKKEE 1097
Qy	59	LKDA-----	ETNNVEDYIKE-----	GLEEAIATKKALEKTQK-----ELDAA 96
Db	1098	LQAALAELEDETQKNNALKKIRELSH	ISDQLQEDLESEKAARNKAQKRD	LESELEAL 1157
Qy	97	LNEL 100		
Db	1158	KTEL 1161		

Result No.	Score	Query			DB	ID	Description
		Match	Length	%			
1	322	60.9	744	2	F95013	pneumococcal surface	
2	206	38.9	619	2	A97887	surface protein ps	
3	206	38.9	619	2	A41971	myosin heavy chain	
4	117	22.1	1979	1	S03166	tropomyosin isoform	
5	116	21.9	256	2	S89923	hypothetical prote	
6	115.5	21.8	779	2	C96805	myosin heavy chain	
7	115	21.7	412	2	S07537	hypothetical prote	
8	115	21.7	621	2	S10450	myosin heavy chain	
9	114.5	21.6	721	2	S29795	hypothetical prote	
10	114.5	21.6	1931	2	A59234	slow myosin heavy	
11	114.5	21.6	1934	2	I48153	myosin heavy chain	
12	114.5	21.6	1937	2	I38055	myosin heavy chain	
13	114	21.6	1938	2	JC5421	smooth muscle myos	
14	114	21.6	1972	2	JC5420	smooth muscle myos	
15	113.5	21.5	630	2	S29796	hypothetical prote	
16	113.5	21.5	1509	1	A27224	myosin heavy chain	
17	113.5	21.5	1940	1	A24922	myosin heavy chain	
18	113.5	21.5	1940	1	S04090	myosin heavy chain	
19	113.5	21.5	2139	2	T18296	myosin heavy chain	
20	112.5	21.3	1961	1	A61231	myosin heavy chain	
21	112	21.2	284	2	A44980	tropomyosin, obliq	
22	112	21.2	284	2	S58921	tropomyosin isoform	
23	111.5	21.1	279	2	D71453	hypothetical prote	
24	111.5	21.1	1177	2	B75150	chromosome segrega	
25	111.5	21.1	1938	2	I49464	alpha cardiac myos	
26	111.5	21.1	2954	2	T14156	kinesin-related pr	
27	111	21.0	484	2	B33501	myosin heavy chain	
28	111	21.0	1893	2	T22661	hypothetical prote	
29	111	21.0	1972	1	A41604	myosin heavy chain	

```

DT 28-OCT-1997 (first entry)
XX
DE Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Bg7561.
XX
FH Key Location/Qualifiers
FT Misc-difference 44
FT /note= "unidentified amino acid"
XX
XX WO9709994-A1.
XX
XX 20-MAR-1997.
XX
XX 16-SEP-1996; 96WO-US014819.
XX
XX 15-SEP-1995; 95US-00529055.
XX
XX (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
XX Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
XX in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Example 6; Fig 13; 296pp; English.
XX
XX This sequence shows the central portion, including the C-terminus of the
XX alpha-helix region and some of the proline-rich region, of pneumococcal
XX surface protein A (PspA) of Streptococcus pneumoniae strain Bg7561.
XX Comparison of the N-terminal and central regions (AAW14533-57 and
XX AAW14562-91) of PspA polypeptides from different pneumococcal strains can
XX be used to divide the strains into several families based on sequence
XX homologies. PspA polypeptides, or fragments of them, can be used in
XX vaccines to protect animals against S. pneumoniae infection and hence for
XX the prevention of diseases such as otitis media, meningitis, bacteraemia
XX and pneumonia. The sequence of the 3' half of the PspA alpha-helical
XX region and the immediate 5' tip of the coding sequence are likely to be
XX the critical sequences for predicting PspA cross-reactions and vaccine
XX composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
XX Sequence 184 AA;
XX
Query Match 70.2%; Score 371.5; DB 2; Length 184;
Best Local Similarity 76.0%; Pred. No. 4.6e-22;
Matches 79; Conservative 11; Mismatches 13; Indels 1; Gaps 1;
QY 5 ELELEKVLATLDPEGKTODELDKEAAAEALNEKVEALONQVALEEEELSKLEDNLKDAET 64
DB 4 KVNLENLLST-DPGKTDDELKGAAEALNKKVLAALPNVXEEELSPEDNLKDAET 62
QY 65 NNVEDYIKEGLEAEIATKAELEKTKQELDAALNELGPDGDEE 108
DB 63 NHVEDYIKEFLEAEIATKQAELEETPQEVDAALNDLVDPGDEE 106

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RESULT 13
ABW02622
ID ABW02622 standard; protein; 212 AA.
XX
AC ABW02622;
XX
DT 12-FEB-2004 (first entry)
XX
DE Bg7817c pneumococcal surface protein A (PspA) central region.
XX
KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX
DR WPI; 2003-862841/80.
XX
PT Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
PS Example 6; SEQ ID NO 68; 121pp; English.
XX
CC The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7817c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 212 AA;
XX
Query Match 87.0%; Score 460; DB 7; Length 212;
Best Local Similarity 88.0%; Pred. No. 4.4e-29;
Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;
QY 1 LEDAELEKVIATLDPEGKTQDELDKAAAEALNEKVEALQNQVAELEEEESKLEDNLK 60
DB 28 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNEKVEALPNQVAELEEEESKLEDNLK 87
QY 61 DAETNNVEDYIKEGLEEAATKKALEKTKQELDAALNELGPDGDEEE 108
DB 88 DAETNRHVEDYIKEGLEEAATKKALEKTKPKELDAALNELGPDGDEEE 135
XX
RESULT 14
ABW02623
ID ABW02623 standard; protein; 185 AA.
XX
AC ABW02623;
XX
DT 17-OCT-2003 (revised)
XX
```

```

XX
DT 12-FEB-2004 (first entry)
XX
DE Bg7561c pneumococcal surface protein A (PspA) central region.
XX
KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
FH Key Location/Qualifiers
FT Misc-difference 45
FT /label= Unknown
XX
PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX
DR WPI; 2003-862841/80.
XX
PT Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
PS Example 6; SEQ ID NO 69; 121pp; English.
XX
CC The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7561c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 185 AA;
XX
Query Match 74.7%; Score 395; DB 7; Length 185;
Best Local Similarity 77.9%; Pred. No. 6.1e-24;
Matches 81; Conservative 11; Mismatches 12; Indels 0; Gaps 0;
QY 5 ELELEKVIATLDPEGKTQDELDKAAAEALNEKVEALQNQVAELEEEESKLEDNLKDAET 64
DB 4 KVNLENLSTLDPEGKTQDELDKAAAEALNEKVKVALPNPVXLEEEELSPEDNLKDAET 63
QY 65 NNVEDYIKEGLEEAATKKALEKTKQELDAALNELGPDGDEEE 108
DB 64 NHVEDYIKEGLEEAATKKALEETPQEVDAALNDLVPDGGEE 107
XX
RESULT 15
AAW14589
ID AAW14589 standard; protein; 184 AA.
XX
AC AAW14589;
XX
DT 17-OCT-2003 (revised)
XX
```


CC used in the exemplification of the invention

XX Sequence 211 AA;

Query Match 91.3%; Score 483; DB 7; Length 211;

Best Local Similarity 90.7%; Pred. No. 6.4e-31;

Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALONQVALEEEELSLEDNLK 60

DB 25 LEKAAELENLLSTLDPEGKTQDELDEKAAAEALNEKVEALPNQVSELEELSLEDNLK 84

QY 61 DAETNNVEDYIKGLEEAIATKKAELKTKQELDAALNELGPDGDEE 108

DB 85 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 11

ID AAW14587

AAW14587 standard; protein; 238 AA.

XX AC

AAW14587;

XX DT 17-OCT-2003 (revised)

DT 28-OCT-1997 (first entry)

XX DE

Streptococcus pneumoniae PspA central region.

XX KW

PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;

KW bacteraemia; pneumonia.

XX OS

Streptococcus pneumoniae; strain Bg11703.

XX PN

WO9709994-A1.

XX PD

20-MAR-1997.

XX PF

16-SEP-1996; 96WO-US014819.

XX PR

15-SEP-1995; 95US-00529055.

XX PA

(UABR-) UAB RES FOUND.

XX PI

Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;

PI Hollingshead S, Tart R, Brooks-Walter A;

XX PS

WPI; 1997-202002/18.

XX PT

Streptococcus pneumoniae surface protein PspC and truncated PspA - used in vaccines for protecting animals against S.pneumoniae infection.

XX PS

Example 6; Fig 13; 296pp; English.

XX CC

This sequence shows the central portion, including the C-terminus of the alpha-helix region and some of the proline-rich region, of pneumococcal surface protein A (PspA) of Streptococcus pneumoniae strain Bg11703.

XX CC

Comparison of the N-terminal and central regions (AAW14533-57 and

CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can

CC be used to divide the strains into several families based on sequence

CC homologies. PspA polypeptides, or fragments of them, can be used in

CC vaccines to protect animals against S. pneumoniae infection and hence for

CC the prevention of diseases such as otitis media, meningitis, bacteraemia

CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical

CC region and the immediate 5' tip of the coding sequence are likely to be

CC the critical sequences for predicting PspA cross-reactions and vaccine

CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX SQ

Sequence 238 AA;

Query Match

Best Local Similarity 91.3%; Score 483; DB 2; Length 238;

Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALONQVALEEEELSLEDNLK 60

DB 25 LEKAAELENLLSTLDPEGKTQDELDEKAAAEALNEKVEALPNQVSELEELSLEDNLK 84

QY 61 DAETNNVEDYIKGLEEAIATKKAELKTKQELDAALNELGPDGDEE 108

DB 85 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 12

ID AAW14588

AAW14588 standard; protein; 212 AA.

XX AC

AAW14588;

XX DT 17-OCT-2003 (revised)

DT 28-OCT-1997 (first entry)

XX DE

Streptococcus pneumoniae PspA central region.

XX KW

PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;

KW bacteraemia; pneumonia.

XX OS

Streptococcus pneumoniae; strain Bg7817.

XX PN

WO9709994-A1.

XX PD

20-MAR-1997.

XX PF

16-SEP-1996; 96WO-US014819.

XX PR

15-SEP-1995; 95US-00529055.

XX PA

(UABR-) UAB RES FOUND.

XX PI

Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;

PI Hollingshead S, Tart R, Brooks-Walter A;

XX DR

WPI; 1997-202002/18.

XX PT

Streptococcus pneumoniae surface protein PspC and truncated PspA - used in vaccines for protecting animals against S.pneumoniae infection.

XX PS

Example 6; Fig 13; 296pp; English.

XX CC

This sequence shows the central portion, including the C-terminus of the alpha-helix region and some of the proline-rich region, of pneumococcal surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.

XX CC

Comparison of the N-terminal and central regions (AAW14533-57 and

CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can

CC be used to divide the strains into several families based on sequence

CC homologies. PspA polypeptides, or fragments of them, can be used in

CC vaccines to protect animals against S. pneumoniae infection and hence for

CC the prevention of diseases such as otitis media, meningitis, bacteraemia

CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical

CC region and the immediate 5' tip of the coding sequence are likely to be

CC the critical sequences for predicting PspA cross-reactions and vaccine

CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX SQ

Sequence 212 AA;

Query Match 87.0%; Score 460; DB 2; Length 212;

Best Local Similarity 88.0%; Pred. No. 4.4e-29;

Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALONQVALEEEELSLEDNLK 60

DB 28 LEKAGAGLGNLLSTLDPEGKTQDELDEKAAAEALNEKVEALPNQVSELEELSLEDNLK 87

QY 61 DAETNNVEDYIKGLEEAIATKKAELKTKQELDAALNELGPDGDEE 108

DB 88 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 135

PT Isolated PspC amino acid sequence used as polymerase chain reaction or
PT hybridization probe, comprises pneumococcal surface protein having alpha-
PT helical, proline rich and repeat regions.
XX
PS Disclosure; Col 145-188; 186pp; English.
XX
CC The present invention relates to the isolation of Streptococcus
CC pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
CC sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-
CC like protein having alpha-helical, proline rich and repeat regions. The
CC PspC and PspA proteins may be used in a vaccine to protect against
CC pneumococcal infections. The polynucleotide sequences encoding PspC and
CC PspA may be used for the expression of the proteins, and as PCR primers
CC or hybridisation probes. The present sequence represents S. pneumoniae
CC PspA protein
XX
SQ Sequence 8991 AA;

Query Match 100.0%; Score 529; DB 6; Length 8991;
Best Local Similarity 100.0%; Pred. No. 8.9e-33;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEAEELNEKVEALQNOVAEEELSLEDNLK 60
Db 8615 LEDAELEKVLATLDPEGKTQDELDKAAAEAEELNEKVEALQNOVAEEELSLEDNLK 8674

QY 61 DAETNNVEDYIKEGLEAEATKKALEKTKQKELDAALNELGPDGDEE 108
Db 8675 DAETNNVEDYIKEGLEAEATKKALEKTKQKELDAALNELGPDGDEE 8722

RESULT 9
AAW14590
ID AAW14590 standard; protein; 233 AA.
XX
AC AAW14590;
XX
DT 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
DE Streptococcus pneumoniae PspA central region.
XX
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Ef5668.
XX
PN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
DR
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Example 6; Fig 13; 296pp; English.
PS
XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see
CC also AAW14592). Comparison of the N-terminal and central regions
CC (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains
CC can be used to divide the strains into several families based on sequence

CC homologues. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ Sequence 233 AA;

Query Match 98.0%; Score 518.5; DB 2; Length 233;
Best Local Similarity 99.1%; Pred. No. 1e-33;
Matches 108; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 LEDAELEKVLATLDPEGKTQDELDKAAAEAEELNEKVEALQNOVAEEELSLEDNL 59
Db 51 LEDAELEKVLATLDPEGKTQDELDKAAAEAEELNEKVEALQNOVAEEELSLEDNL 110

QY 60 KDAETNNVEDYIKEGLEAEATKKALEKTKQKELDAALNELGPDGDEE 108
Db 111 KDAETNNVEDYIKEGLEAEATKKALEKTKQKELDAALNELGPDGDEE 159

RESULT 10
ABW02621
ID ABW02621 standard; protein; 211 AA.
XX
AC ABW02621;
XX
DT 12-FEB-2004 (first entry)
XX
DE Bg11703c pneumococcal surface protein A (PspA) central region.
XX
KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI
XX WPI; 2003-862841/80.
DR
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 67; 121pp; English.
PS
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg11703c
CC pneumococcal surface protein A (PspA) central region. This sequence is

```

PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE;
XX
XX WPI; 2004-192068/18.
XX
PT Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
PS Claim 17; SEQ ID NO 1; 41pp; English.
XX
XX The present invention relates to treating Streptococcus pneumoniae
XX infection in a subject lacking a functional spleen comprises
XX administering an antibody that recognizes pneumococcal surface protein A
XX (PspA) or its binding portion. The method is useful for treating or
XX preventing Streptococcus pneumoniae infection in a subject lacking a
XX functional spleen. The disease-associated injury is especially due to
XX hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
XX anemia or Hodgkin's disease. The present sequence represents PspA
XX molecule from the Rxi strain of Streptococcus pneumoniae.
XX
SQ Sequence 653 AA;
Query Match 100.0%; Score 529; DB 8; Length 653;
Best Local Similarity 100.0%; Pred. No. 4.7e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 LEDAELELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNOVAEELEELSLEDNLK 60
Db 276 LEDAELELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNOVAEELEELSLEDNLK 335
Qy 61 DAETNNVEDYIKEGLEEAIAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 336 DAETNNVEDYIKEGLEEAIAATKKALEKTQKELDAALNELGPDGDEEE 383
RESULT 7
ADO52080
ID ADO52080 standard; protein; 653 AA.
XX
AC ADO52080;
XX
XX 12-AUG-2004 (first entry)
XX
DE S. pneumoniae strain EF5688 PspA protein.
XX
KW Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.
XX
OS Streptococcus pneumoniae.
XX
FH Key Location/Qualifiers
FT Peptide 1..31
FT Protein /label= Signal_peptide
FT Protein 32..653
FT Domain /note= "S. pneumoniae strain EF5688 mature PspA protein"
FT Domain 110..384
FT Domain /note = PspA alpha-helical domain
XX
XX US2004101531-A1.
XX
XX 27-MAY-2004.
XX
XX 15-APR-2003; 2003US-00414532.
XX
XX 16-APR-2002; 2002US-0372710P.
XX
PA (CURT/) CURTISS R.
PA

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PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX
XX WPI; 2004-399655/37.
XX
DR N-PSDB; ADO52067.
XX
XX New vaccine comprising a live attenuated strain of pathogenic gram-
XX negative bacteria, useful in eliciting a Th2-type immune response in a
XX vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
XX or bacteria.
XX
XX Example 5; SEQ ID NO 26; 94pp; English.
XX
XX The invention relates to immunogenic compositions and vaccines comprising
XX a live attenuated strain of pathogenic gram negative bacteria that
XX secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
XX response in a vertebrate against pathogens, e.g., helminths, fungi,
XX viruses, protozoans or bacteria. The present sequence is Streptococcus
XX pneumoniae strain EF5688 pneumococcal surface protein A (PspA). This
XX sequence is used in the exemplification of the invention.
XX
SQ Sequence 653 AA;
Query Match 100.0%; Score 529; DB 8; Length 653;
Best Local Similarity 100.0%; Pred. No. 4.7e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 LEDAELELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNOVAEELEELSLEDNLK 60
Db 276 LEDAELELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNOVAEELEELSLEDNLK 335
Qy 61 DAETNNVEDYIKEGLEEAIAATKKALEKTQKELDAALNELGPDGDEEE 108
Db 336 DAETNNVEDYIKEGLEEAIAATKKALEKTQKELDAALNELGPDGDEEE 383
RESULT 8
ABU08487
ID ABU08487 standard; protein; 8991 AA.
XX
AC ABU08487;
XX
XX 24-JUN-2003 (first entry)
XX
XX S. pneumoniae pneumococcal surface protein A (PspA) protein.
XX
XX Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
XX alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
XX antibacterial.
XX
XX Streptococcus pneumoniae.
XX
XX Key Location/Qualifiers
XX Misc-difference 1..8991
XX /note= "All Xaa residues within this sequence are
XX unknown"
XX
XX US6500613-B1.
XX
XX 31-DEC-2002.
XX
XX 16-SEP-1996; 96US-00714741.
XX
XX 15-SEP-1995; 95US-00529055.
XX
XX (UYAL-) UNIV ALABAMA.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
XX Hollingshead S, Tart R, Brooks-Walter A;
XX WPI; 2003-361534/34.
XX
XX

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XX 17-OCT-2003 (revised)
DT 27-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA surface protein.
DE
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
XX Streptococcus pneumoniae; strain Ef5668.
OS
XX WO9709994-A1.
PN
XX 20-MAR-1997.
PD
XX 16-SEP-1996; 96WO-US014819.
XX
XX 15-SEP-1995; 95US-00529055.
PR
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
DR N-PSDB; AAT61724.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Disclosure; Fig 13; 296pp; English.
XX
XX This sequence comprises the pneumococcal surface protein A (pspA) of
CC Streptococcus pneumoniae strain Ef5668. The sequence was deduced from the
CC pspA gene (AAT61724). PspA polypeptides, or fragments of them, can be
CC used in vaccines to protect animals against S. pneumoniae infection and
CC hence for the prevention of diseases such as otitis media, meningitis,
CC bacteraemia and pneumonia. (Updated on 17-OCT-2003 to standardise OS
CC field)
XX
XX Sequence 458 AA;
SQ
Query Match 100.0%; Score 529; DB 2; Length 458;
Best Local Similarity 100.0%; Pred. No. 3.2e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 LEDAELEKVLATLDPEGKTQDELDKEAAEAELEKVEALQNVAELEEEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDKEAAEAELEKVEALQNVAELEEEELSKLEDNLK 335
QY 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
DB 336 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 383
RESULT 5
ABW02626
ID ABW02626 standard; protein; 458 AA.
XX
XX ABW02626;
AC
XX 12-FEB-2004 (first entry)
DT
XX Ef5668 pneumococcal surface protein A (PspA).
DE
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
XX Unidentified.
OS
XX
XX Key Location/Qualifiers
FH Misc-difference 458
FT /note= "Encoded by GC"
```

```
XX US6592876-B1.
PN
XX 15-JUL-2003.
PD
XX
XX 15-SEP-1995; 95US-00529055.
PF
XX 20-APR-1993; 93US-00048896.
PR
XX 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
PA
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI
XX WPI; 2003-862841/80.
DR N-PSDB; AAD64535.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 73; 121pp; English.
XX
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAe) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef5668 pneumococcal
CC surface protein A (PspA) used in the exemplification of the invention
XX
XX Sequence 458 AA;
SQ
Query Match 100.0%; Score 529; DB 7; Length 458;
Best Local Similarity 100.0%; Pred. No. 3.2e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 LEDAELEKVLATLDPEGKTQDELDKEAAEAELEKVEALQNVAELEEEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDKEAAEAELEKVEALQNVAELEEEELSKLEDNLK 335
QY 61 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 108
DB 336 DAETNNVEDYIKEGLEEAATKKALEKTQKELDAALNELGPDGDEEE 383
RESULT 6
ADK52495
ID ADK52495 standard; protein; 653 AA.
XX
XX ADK52495;
AC
XX 20-MAY-2004 (first entry)
DT
XX PspA molecule from the Rx1 strain of Streptococcus pneumoniae.
DE
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
XX Streptococcus pneumoniae.
OS
XX
XX WO2004016231-A2.
PN
XX 26-FEB-2004.
PD
XX
```

CC vaccines and in gene therapy. The present sequence is Ef568c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
XX
SQ Sequence 232 AA;

Query Match 100.0%; Score 529; DB 7; Length 232;
Best Local Similarity 100.0%; Pred. No. 1.5e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 60
DB 51 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 110

QY 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
DB 111 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 158

RESULT 2
ADOS2055
ID ADO52055 standard; protein; 275 AA.
XX
AC ADO52055;
XX
DT 12-AUG-2004 (first entry)
XX
DE S. pneumoniae strain EF5688 PspA alpha helical domain.
XX
KW Immunogenic composition; vaccine; Th2-type immune response ;
KW pneumococcal surface protein A; PspA.
XX
OS Streptococcus pneumoniae.
XX
PN US2004101531-A1.
XX
PD 27-MAY-2004.
XX
PF 15-APR-2003; 2003US-00414532.
XX
PR 16-APR-2002; 2002US-0372710P.
XX
PA (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX
XX WPI; 2004-399655/37.
XX
PT New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
PS Claim 17; SEQ ID NO 1; 94pp; English.

CC The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX
SQ Sequence 275 AA;

Query Match 100.0%; Score 529; DB 8; Length 275;
Best Local Similarity 100.0%; Pred. No. 1.8e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 60
DB 167 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 226

QY 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
DB 227 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 274

RESULT 3
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX
AC ADK52496;
XX
DT 20-MAY-2004 (first entry)
XX
DE alpha helical region PspA molecule from the Rx1 strain.
XX
KW Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
OS Streptococcus pneumoniae.
XX
PN WO2004016231-A2.
XX
PD 26-FEB-2004.
XX
PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE;
XX
DR WPI; 2004-192068/18.
XX
PT Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
PS Claim 17; SEQ ID NO 2; 41pp; English.

CC The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface protein A
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents the alpha
CC helical region PspA molecule from the Rx1 strain of Streptococcus
CC pneumoniae.
XX
SQ Sequence 369 AA;

Query Match 100.0%; Score 529; DB 8; Length 369;
Best Local Similarity 100.0%; Pred. No. 2.5e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 60
DB 245 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNEKVEALQNVAAEEELSLEDNLK 304

QY 61 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 108
DB 305 DAETNNVEDYIKGLEEAIATKKALEKTKQELDAALNELGPDGDEE 352

RESULT 4
AAW14592
ID AAW14592 standard; protein; 458 AA.
XX
AC AAW14592;

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 76.7468 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-25
Perfect score: 529
Sequence: 1 LEDAELEKVLATLDPEK.....TQKELDAALNELGPDGDEE 108

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*

1: Geneseqp1980s:*

2: Geneseqp1990s:*

3: Geneseqp2000s:*

4: Geneseqp2001s:*

5: Geneseqp2002s:*

6: Geneseqp2003as:*

7: Geneseqp2003bs:*

8: Geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Query %	Length	DB	ID	Description
1	529	100.0	232	7	ABW02624	Abw02624	Ef5668c p
2	529	100.0	275	8	ADO52055	Ado52055	S. pneumo
3	529	100.0	369	8	ADK52496	Adk52496	alpha hel
4	529	100.0	458	2	AAW14592	Aaw14592	Streptoco
5	529	100.0	458	7	ABW02626	Abw02626	Ef5668 pn
6	529	100.0	653	8	ADK52495	Adk52495	PspA mole
7	529	100.0	653	8	ADO52080	Ado52080	S. pneumo
8	529	100.0	8991	6	ABU08487	Abu08487	S. pneumo
9	518.5	98.0	233	2	AAW14590	Aaw14590	Streptoco
10	483	91.3	211	7	ABW02621	Abw02621	Bg11703c
11	483	91.3	238	2	AAW14587	Aaw14587	Streptoco
12	460	87.0	212	2	AAW14588	Aaw14588	Streptoco
13	460	87.0	212	7	ABW02622	Abw02622	Bg7817c p
14	395	74.7	185	7	ABW02623	Abw02623	Bg7561c p
15	371.5	70.2	184	2	AAW14589	Aaw14589	Streptoco
16	361.5	68.3	459	8	ADO15316	Ado15316	S. pneumon
17	322.5	61.0	487	8	ADR04321	Adr04321	Streptoco
18	322.5	61.0	489	8	ADO52088	Ado52088	Streptoco
19	322.5	61.0	524	8	ADO52082	Ado52082	E. coli B
20	322.5	61.0	627	8	ADO52129	Ado52129	E. coli B
21	322	60.9	416	8	ADK52498	Adk52498	alpha hel
22	322	60.9	526	8	ADK52497	Adk52497	PspA mole
23	322	60.9	744	6	ABU00449	Abu00449	S. pneumo
24	322	60.9	744	8	ADM92054	Adm92054	S. pneumon
25	322	60.9	745	3	AAW81652	Aaw81652	Streptoco

ALIGNMENTS

RESULT 1
ABW02624
ID ABW02624 standard; protein; 232 AA.
XX AC ABW02624;
XX DT 12-FEB-2004 (first entry)
XX DE Ef5668c pneumococcal surface protein A (PspA) central region.
XX KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
XX KW immunological; gene therapy; immunostimulant.
XX OS Unidentified.
XX PN US592876-B1.
XX PD 15-JUL-2003.
XX PF 15-SEP-1995; 95US-00529055.
XX PR 20-APR-1993; 93US-00048896.
XX PR 06-JUN-1995; 95US-00465746.
XX (UABR-) UAB RES FOUND.
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
WPI; 2003-862841/80.
Immunological composition for obtaining expression products used for detecting the presence of Streptococcus pneumoniae or its strain, comprises at least two different full length isolated gene encoding pneumococcal surface protein A.

Example 6; SEQ ID NO 70; 121bp; English.

The present invention relates to an immunological composition comprising at least 2 different full length isolated genes encoding pneumococcal surface protein A (PspAs) from different groups based on restriction fragment polymorphism analysis. The invention is useful for obtaining expression products by recombinant techniques to detect, determine, isolate or diagnose the presence of Streptococcus pneumoniae or its strain. The expression product is useful for preparing antibodies, an immunological or vaccine compositions, for eliciting antibodies, an immunological response (other than or additional to antibodies), or a protective response (including antibody or other immunological response by administering compositions to a host). The invention is also useful as

Aaw61217 Streptoco
Abp54636 S. pneumo
Adc45241 S. pneumo
Ado52119 PYA3637 b
Ado52127 PYA3637 b
Ado52086 S. pneumo
Adr04319 Streptoco
Abw02598 Ac122c pn
Abw02601 Bg8090c p
Aaw14567 Streptoco
Aaw46291 Pneumococ
Aaw14563 Streptoco
Abw02597 Atcc6303c
Aaw14564 Streptoco
Abw02606 Bf1019c p
Aaw14572 Streptoco
Aaw62276 Streptoco
Aay41840 Streptoco
Aaw87910 Protein s
Aaw92458 S. pneumo

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; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 62
; LENGTH: 213
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; NAME/KEY: UNSURE
; LOCATION: (2)
; OTHER INFORMATION: Xaa at position 2 is unknown
US-10-299-636-62

Query Match 59.0%; Score 317; DB 15; Length 213;
Best Local Similarity 65.7%; Pred. No. 2.1e-17;
Matches 71; Conservative 9; Mismatches 24; Indels 4; Gaps 2;
QY 1 LEKAGAGLENLLSTLDPEGKTQDELDKAAEAELNKKVEALPNQVAEEELSKLEDNLK 60
Db 59 LAKQTELEKLLDNLDPGKTQDELDKAAEAELDKADELPNKKVADLEKISNLEILLG 118
QY 61 DAETHNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 119 GADP---ED-DTAALPNKLTAKAEFEKTPKELDAALNELGPDGDEEE 162

RESULT 14

US-10-674-755-21
; Sequence 21, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 21
; LENGTH: 104
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-21

Query Match 58.3%; Score 313; DB 15; Length 104;
Best Local Similarity 65.7%; Pred. No. 1.9e-17;
Matches 71; Conservative 9; Mismatches 24; Indels 4; Gaps 2;
QY 1 LEKAGAGLENLLSTLDPEGKTQDELDKAAEAELNKKVEALPNQVAEEELSKLEDNLK 60
Db 1 LAKQTELEKLLDNLDPGKTQDELDKAAEAELDKADELPNKKVADLEKISNLEILLG 60
QY 61 DAETHNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 GADP---ED-DTAALPNKLTAKAELEKTPKELDAALNELGPDGDEEE 104

RESULT 15

US-10-674-755-20
; Sequence 20, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28

; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 20
; LENGTH: 104
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-20
Query Match 57.9%; Score 311; DB 15; Length 104;
Best Local Similarity 64.8%; Pred. No. 2.7e-17;
Matches 70; Conservative 11; Mismatches 23; Indels 4; Gaps 2;
QY 1 LEKAGAGLENLLSTLDPEGKTQDELDKAAEAELNKKVEALPNQVAEEELSKLEDNLK 60
Db 1 LAKQTELEKLLDNLDPGKTQDELDKAAEAELDKADELPNKKVADLEKISNLEILLG 60
QY 61 DAETHNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 GADP---ED-DTAALPNKLTAKAELEKTPKELDAALNELGPDGDEEE 104
Search completed: November 17, 2005, 20:29:18
Job time : 71.832 secs


```
Qy 1 LEKAGAGLENLSTLDPGGKTQDELDKGAABAEALNKKVEALPNQVAELEELSLEEDNLK 60
Db 276 LEDAELEKVLATLDPGGKTQDELDKGAABAEALNKKVEALQNVAELEELSLEEDNLK 335
Qy 61 DAETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 336 DAETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 10
US-10-414-532-26
; Sequence 26, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 26
; LENGTH: 653
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-26

Query Match 87.0%; Score 467; DB 16; Length 653;
Best Local Similarity 88.9%; Pred. No. 1e-28;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLSTLDPGGKTQDELDKGAABAEALNKKVEALPNQVAELEELSLEEDNLK 60
Db 276 LEDAELEKVLATLDPGGKTQDELDKGAABAEALNKKVEALQNVAELEELSLEEDNLK 335
Qy 61 DAETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 336 DAETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 11
US-10-674-755-26
; Sequence 26, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 26
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (1)..(108)
; OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
US-10-674-755-26

Query Match 84.5%; Score 454; DB 15; Length 108;
Best Local Similarity 87.0%; Pred. No. 1.4e-28;
Matches 94; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLSTLDPGGKTQDELDKGAABAEALNKKVEALPNQVAELEELSLEEDNLK 60
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Db 1 LEKAAELENLLSTLDPGGKTQDELDKGAABAEALNKKVEALPNVXLEELSPPEDNLK 60
Qy 61 DAETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 DAETHNVEDYIKGLEEAIATKQAELEETPQEVDAALNDLVPDGGDEE 108

RESULT 12
US-10-299-636-84
; Sequence 84, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 84
; LENGTH: 185
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (45)
; OTHER INFORMATION: Xaa at position 45 is unknown
US-10-299-636-84

Query Match 81.8%; Score 439; DB 15; Length 185;
Best Local Similarity 84.1%; Pred. No. 3.9e-27;
Matches 90; Conservative 5; Mismatches 12; Indels 0; Gaps 0;

Qy 2 EKAGAGLENLSTLDPGGKTQDELDKGAABAEALNKKVEALPNQVAELEELSLEEDNLK 61
Db 1 KKQVNLLENLLSTLDPGGKTQDELDKGAABAEALNKKVEALPNVXLEELSPPEDNLK 60
Qy 62 AETHNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 AETHNVEDYIKGLEEAIATKQAELEETPQEVDAALNDLVPDGGDEE 107

RESULT 13
US-10-299-636-62
; Sequence 62, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
```

Db 60 DAETN-VEDYIKEGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 106

RESULT 6

US-10-674-755-25
 ; Sequence 25, Application US/10674755
 ; Publication No. US20040067237A1
 ; GENERAL INFORMATION:
 ; APPLICANT: BECKER et al.
 ; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
 ; FILE REFERENCE: 454312-2471
 ; CURRENT APPLICATION NUMBER: US/10/674,755
 ; PRIOR FILING DATE: 2003-09-30
 ; PRIOR APPLICATION NUMBER: US/09/147,875A
 ; PRIOR FILING DATE: 1999-05-24
 ; NUMBER OF SEQ ID NOS: 28
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 25
 ; LENGTH: 108
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-674-755-25

Query Match 87.0%; Score 467; DB 15; Length 108;
 Best Local Similarity 88.9%; Pred. No. 1.3e-29;
 Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVKYALPNOVAEEELSLEDNLK 60

Db 1 LEDAELEKVLATLDPEGKTQDELDKAAAEALNKVKYALQNOVAEEELSLEDNLK 60

QY 61 DAETNHVEDYIKEGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 61 DAETNNVEDYIKEGLEEAIATKAELEKTPKELDAALNELGPDGDEEE 108

RESULT 7

US-10-299-636-85
 ; Sequence 85, Application US/10299636
 ; Publication No. US20040077847A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Briles, David E
 ; APPLICANT: McDaniel, Larry S
 ; APPLICANT: Swiatlo, Edwin
 ; APPLICANT: Yother, Janet
 ; APPLICANT: Crain, Marilyn J
 ; APPLICANT: Hollingshead, Susan
 ; APPLICANT: Tart, Rebecca
 ; APPLICANT: Brooks-Walter, Alexis
 ; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
 ; FILE REFERENCE: 57909/361
 ; CURRENT APPLICATION NUMBER: US/10/299,636
 ; PRIOR FILING DATE: 2002-11-19
 ; PRIOR APPLICATION NUMBER: 08/714,741
 ; PRIOR FILING DATE: 1996-09-16
 ; PRIOR APPLICATION NUMBER: 08/529,055
 ; PRIOR FILING DATE: 1995-09-15
 ; NUMBER OF SEQ ID NOS: 111
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 85
 ; LENGTH: 232
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-299-636-85

Query Match 87.0%; Score 467; DB 15; Length 232;
 Best Local Similarity 88.9%; Pred. No. 3.1e-29;
 Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVKYALPNOVAEEELSLEDNLK 60

Db 51 LEDAELEKVLATLDPEGKTQDELDKAAAEALNKVKYALQNOVAEEELSLEDNLK 110

QY 61 DAETNHVEDYIKEGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 111 DAETNNVEDYIKEGLEEAIATKAELEKTPKELDAALNELGPDGDEEE 158

RESULT 8

US-10-414-532-1
 ; Sequence 1, Application US/10414532
 ; Publication No. US20040101531A1
 ; GENERAL INFORMATION:
 ; APPLICANT: CURTISS III, ROY
 ; APPLICANT: KANG, HO YOUNG
 ; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
 ; FILE REFERENCE: 56029-40437
 ; CURRENT APPLICATION NUMBER: US/10/414,532
 ; CURRENT FILING DATE: 2003-04-15
 ; PRIOR APPLICATION NUMBER: 60/372,710
 ; PRIOR FILING DATE: 2002-04-16
 ; NUMBER OF SEQ ID NOS: 72
 ; SOFTWARE: PatentIn Ver. 3.2
 ; SEQ ID NO 1
 ; LENGTH: 275
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-414-532-1

Query Match 87.0%; Score 467; DB 16; Length 275;
 Best Local Similarity 88.9%; Pred. No. 3.8e-29;
 Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVKYALPNOVAEEELSLEDNLK 60

Db 167 LEDAELEKVLATLDPEGKTQDELDKAAAEALNKVKYALQNOVAEEELSLEDNLK 226

QY 61 DAETNHVEDYIKEGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 227 DAETNNVEDYIKEGLEEAIATKAELEKTPKELDAALNELGPDGDEEE 274

RESULT 9

US-10-299-636-88
 ; Sequence 88, Application US/10299636
 ; Publication No. US20040077847A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Briles, David E
 ; APPLICANT: McDaniel, Larry S
 ; APPLICANT: Swiatlo, Edwin
 ; APPLICANT: Yother, Janet
 ; APPLICANT: Crain, Marilyn J
 ; APPLICANT: Hollingshead, Susan
 ; APPLICANT: Tart, Rebecca
 ; APPLICANT: Brooks-Walter, Alexis
 ; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
 ; FILE REFERENCE: 57909/361
 ; CURRENT APPLICATION NUMBER: US/10/299,636
 ; CURRENT FILING DATE: 2002-11-19
 ; PRIOR APPLICATION NUMBER: 08/714,741
 ; PRIOR FILING DATE: 1996-09-16
 ; PRIOR APPLICATION NUMBER: 08/529,055
 ; PRIOR FILING DATE: 1995-09-15
 ; NUMBER OF SEQ ID NOS: 111
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 88
 ; LENGTH: 458
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-299-636-88

Query Match 87.0%; Score 467; DB 15; Length 458;
 Best Local Similarity 88.9%; Pred. No. 6.8e-29;
 Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

```
US-10-299-636-83
; Sequence 83, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 83
; LENGTH: 212
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-83

Query Match      98.7%; Score 530; DB 15; Length 212;
Best Local Similarity 99.1%; Pred. No. 2.9e-34;
Matches 107; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVAEELEELSKEEDNLK 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 28 LEKAGAGLNLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAEELEELSKEEDNLK 87
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Qy 61 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 108
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 88 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 135
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

RESULT 3
US-10-674-755-23
; Sequence 23, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-23

Query Match      95.2%; Score 511; DB 15; Length 108;
Best Local Similarity 96.3%; Pred. No. 4.2e-33;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVAEELEELSKEEDNLK 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 LEKAEAELENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVSELEELSKEEDNLK 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Qy 61 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 108
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 108
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

US-10-299-636-82
; Sequence 82, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 82
; LENGTH: 211
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-82

Query Match      95.2%; Score 511; DB 15; Length 211;
Best Local Similarity 96.3%; Pred. No. 9.1e-33;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVAEELEELSKEEDNLK 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 25 LEKAEAELENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVSELEELSKEEDNLK 84
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Qy 61 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 108
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 85 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 132
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

RESULT 5
US-10-674-755-22
; Sequence 22, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 22
; LENGTH: 106
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-22

Query Match      90.9%; Score 488; DB 15; Length 106;
Best Local Similarity 96.3%; Pred. No. 2.7e-31;
Matches 104; Conservative 0; Mismatches 2; Indels 2; Gaps 2;

Qy 1 LEKAGAGLENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQVAEELEELSKEEDNLK 60
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 LEKAEAELENLLTLDPEGKTQDELKDAEAEALNKKVEALPNQV-ELEELSKEEDNLK 59
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Qy 61 DAETNHVEDYIKGLEEAEIATKQAELEKTPKELDAALNELGPDGDEE 108
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 71.932 Seconds
(without alignments)
629.082 Million cell updates/sec

Title: US-10-674-755-24

Perfect score: 537

Sequence: 1 LEKAGAGLENLLTDPGK.....TPKELDAALNELPGDDEE 108

Scoring table: BLOSUM62

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Searched: 1867879 seqs, 418409474 residues

Total number of hits satisfying chosen parameters: 1867879

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database : Published Applications AA:*

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- 3: /cgn2_6/ptodata/1/pubpaa/US05_NEW_PUB.pep.*
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- 6: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep.*
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- 11: /cgn2_6/ptodata/1/pubpaa/US09C_PUBCOMB.pep.*
- 12: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep.*
- 13: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep.*
- 14: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep.*
- 15: /cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.pep.*
- 16: /cgn2_6/ptodata/1/pubpaa/US10D_PUBCOMB.pep.*
- 17: /cgn2_6/ptodata/1/pubpaa/US10E_PUBCOMB.pep.*
- 18: /cgn2_6/ptodata/1/pubpaa/US10F_PUBCOMB.pep.*
- 19: /cgn2_6/ptodata/1/pubpaa/US11A_PUBCOMB.pep.*
- 20: /cgn2_6/ptodata/1/pubpaa/US11_NEW_PUB.pep.*
- 21: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep.*
- 22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	537	100.0	108	15	US-10-674-755-24
2	530	98.7	212	15	US-10-299-636-83
3	511	95.2	108	15	US-10-674-755-23
4	511	95.2	211	15	US-10-299-636-82
5	488	90.9	106	15	US-10-674-755-22
6	467	87.0	108	15	US-10-674-755-25
7	467	87.0	232	15	US-10-299-636-85
8	467	87.0	275	16	US-10-414-532-1
9	467	87.0	458	15	US-10-299-636-88
10	467	87.0	653	16	US-10-414-532-26
11	454	84.5	108	15	US-10-674-755-26

12	439	81.8	185	15	US-10-299-636-84	Sequence 84, Appl
13	317	59.0	213	15	US-10-299-636-62	Sequence 62, Appl
14	313	58.3	104	15	US-10-674-755-21	Sequence 21, Appl
15	311	57.9	104	15	US-10-674-755-20	Sequence 20, Appl
16	306.5	57.1	459	16	US-10-702-305A-18	Sequence 18, Appl
17	306	57.0	744	10	US-09-769-787-184	Sequence 184, Appl
18	306	57.0	744	17	US-10-472-928-32	Sequence 32, Appl
19	305	56.8	641	9	US-09-765-272-160	Sequence 160, Appl
20	305	56.8	641	20	US-11-106-649-160	Sequence 59, Appl
21	300	55.9	197	15	US-10-299-636-59	Sequence 67, Appl
22	295	54.9	233	15	US-10-299-636-67	Sequence 18, Appl
23	290	54.0	102	15	US-10-674-755-18	Sequence 27, Appl
24	287.5	53.5	119	15	US-10-674-755-27	Sequence 58, Appl
25	287.5	53.5	215	15	US-10-299-636-58	Sequence 34, Appl
26	272	50.7	487	16	US-10-414-532-34	Sequence 21, Appl
27	272	50.7	487	16	US-10-414-532-21	Sequence 28, Appl
28	272	50.7	524	16	US-10-414-532-28	Sequence 65, Appl
29	262.5	48.9	290	16	US-10-414-532-65	Sequence 32, Appl
30	261	48.6	230	16	US-10-414-532-32	Sequence 19, Appl
31	261	48.6	230	16	US-10-414-533-19	Sequence 19, Appl
32	235	43.8	80	15	US-10-674-755-19	Sequence 19, Appl
33	197	36.7	354	15	US-10-299-636-105	Sequence 105, Appl
34	197	36.7	588	15	US-10-299-636-96	Sequence 96, Appl
35	197	36.7	619	10	US-09-882-774-1	Sequence 1, Appl
36	197	36.7	619	15	US-10-282-122A-73702	Sequence 73702, A
37	197	36.7	619	16	US-10-414-532-72	Sequence 72, Appl
38	192	35.8	204	15	US-10-299-636-66	Sequence 66, Appl
39	188	35.0	99	15	US-10-674-755-11	Sequence 11, Appl
40	184.5	34.4	100	15	US-10-674-755-12	Sequence 12, Appl
41	183	34.1	198	15	US-10-299-636-76	Sequence 76, Appl
42	169	31.5	141	14	US-10-254-995-2	Sequence 2, Appl
43	169	31.5	195	15	US-10-299-636-86	Sequence 86, Appl
44	169	31.5	589	9	US-09-748-875-14	Sequence 14, Appl
45	169	31.5	589	10	US-09-298-523B-14	Sequence 14, Appl

ALIGNMENTS

RESULT 1
US-10-674-755-24
; Sequence 24, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent in Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-24

Query Match	100.0%	Score 537;	DB 15;	Length 108;
Best Local Similarity	100.0%;	Pred. No. 3.7e-35;		
Matches 108;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;
QY	1	LEKAGAGLENLLTDPGKTQDELDKAAAEALNKKVEALPNQVAEEELSKLEDNLK	60	
Db	1	LEKAGAGLENLLTDPGKTQDELDKAAAEALNKKVEALPNQVAEEELSKLEDNLK	60	
QY	61	DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELPGDDEE	108	
Db	61	DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELPGDDEE	108	
RESULT 2				

RESULT 15

CLASSIFICATION: 435

RESULT 9
US-09-147-875A-22
; Sequence 22, Application US/09147875A

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Query Match      98.1%; Score 527; DB 2; Length 108;
Best Local Similarity 98.1%; Pred. No. 9.4e-41;
Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVEALPNQVAEELEELSKLEDNLK 60
Db 1 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNKVEALPNQVSELEELSKLEDNLK 60

QY 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 5
US-08-710-749-23
; Sequence 23, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Brilles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-23

Query Match      98.1%; Score 527; DB 2; Length 108;
Best Local Similarity 98.1%; Pred. No. 9.4e-41;
Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVEALPNQVAEELEELSKLEDNLK 60
Db 1 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNKVEALPNQVSELEELSKLEDNLK 60

QY 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 6
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089

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; GENERAL INFORMATION:
; APPLICANT: Brilles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match      95.2%; Score 511; DB 2; Length 108;
Best Local Similarity 96.3%; Pred. No. 2.7e-39;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAAEALNKVEALPNQVAEELEELSKLEDNLK 60
Db 1 LEKAAELENLSTLDPEGKTQDELDKAAAEALNKVEALPNQVSELEELSKLEDNLK 60

QY 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 61 DAETNHVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 7
US-09-147-875A-23
; Sequence 23, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent In Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-23

Query Match      95.2%; Score 511; DB 4; Length 108;
Best Local Similarity 96.3%; Pred. No. 2.7e-39;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

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; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-714-741-32

Query Match 98.7%; Score 530; DB 4; Length 8991;
Best Local Similarity 99.1%; Pred. No. 1e-38;
Matches 107; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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DB 8195 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNKKVQVAELSEELSKLEDNLK 8254

QY 61 DAETHNVVDYIYEGLEEAATQAELEKTPKELDAALNELGPDGDEEE 108
DB 8255 DAETHNVVDYIYEGLEEAATQAELEKTPKELDAALNELGPDGDEEE 8302

RESULT 4
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSES: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-710-749-22

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 18:59:20 ; Search time 20.7935 Seconds
(without alignments)
387.723 Million cell updates/sec

Title: US-10-674-755-24

Perfect score: 537

Sequence: 1 LEKAGAGLENLSTLDPEGK.....TPKELDAALNELPGDDEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued_Patents_AA.*

- 1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep.*
- 2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep.*
- 3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep.*
- 4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep.*
- 5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep.*
- 6: /cgn2_6/ptodata/1/iaa/backfiles1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	537	100.0	108	4	US-09-147-875A-24
2	530	98.7	212	4	US-08-529-055-68
3	530	98.7	8991	4	US-08-714-741-32
4	527	98.1	108	2	US-08-710-749-22
5	527	98.1	108	2	US-08-710-749-23
6	511	95.2	108	2	US-08-710-749-26
7	511	95.2	108	4	US-09-147-875A-23
8	511	95.2	211	4	US-08-529-055-67
9	488	90.9	106	4	US-09-147-875A-22
10	467	87.0	108	2	US-08-710-749-24
11	467	87.0	108	4	US-09-147-875A-25
12	467	87.0	232	4	US-08-529-055-70
13	467	87.0	458	4	US-08-529-055-73
14	454	84.5	108	2	US-08-710-749-25
15	454	84.5	108	2	US-09-147-875A-26
16	439	81.8	185	4	US-08-529-055-69
17	321	59.8	104	2	US-08-710-749-20
18	317	59.0	213	4	US-08-529-055-47
19	313	58.3	104	4	US-09-147-875A-21
20	311	57.9	104	2	US-08-710-749-19
21	311	57.9	104	4	US-09-147-875A-20
22	305	56.8	641	3	US-08-961-083-160
23	305	56.8	641	4	US-09-536-784-160
24	300	55.9	197	4	US-08-529-055-44
25	295	54.9	233	4	US-08-529-055-52
26	290	54.0	102	2	US-08-710-749-21
27	290	54.0	102	4	US-09-147-875A-18

28	287.5	53.5	119	2	US-08-710-749-27	Sequence 27, Appl
29	287.5	53.5	119	4	US-09-147-875A-27	Sequence 27, Appl
30	287.5	53.5	215	4	US-08-529-055-43	Sequence 43, Appl
31	235	43.8	80	2	US-08-710-749-18	Sequence 18, Appl
32	235	43.8	80	4	US-09-147-875A-19	Sequence 19, Appl
33	197	36.7	288	3	US-08-312-949-4	Sequence 4, Appl
34	197	36.7	288	3	US-08-446-201-4	Sequence 4, Appl
35	197	36.7	619	1	US-08-746-2	Sequence 2, Appl
36	197	36.7	619	1	US-08-214-164-2	Sequence 2, Appl
37	197	36.7	619	2	US-08-467-852A-3	Sequence 3, Appl
38	197	36.7	619	2	US-08-246-636-2	Sequence 2, Appl
39	197	36.7	619	2	US-08-247-491A-3	Sequence 3, Appl
40	197	36.7	619	2	US-08-319-795-2	Sequence 2, Appl
41	197	36.7	619	2	US-08-468-985-2	Sequence 2, Appl
42	197	36.7	619	3	US-08-312-949-2	Sequence 2, Appl
43	197	36.7	648	1	US-08-072-070-2	Sequence 2, Appl
44	197	36.7	648	1	US-08-469-434-2	Sequence 2, Appl
45	197	36.7	648	1	US-08-214-222-2	Sequence 2, Appl

ALIGNMENTS

RESULT 1

US-09-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patentin Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-24

Query Match 100.0%; Score 537; DB 4; Length 108;
Best Local Similarity 100.0%; Pred. No. 1.2e-41;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	LEKAGAGLENLSTLDPEGKTQDELKAEAEALNKVVEALPNQVAEELEELSKELENLK 60
Db	1	LEKAGAGLENLSTLDPEGKTQDELKAEAEALNKVVEALPNQVAEELEELSKELENLK 60
Qy	61	DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELPGDDEE 108
Db	61	DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELPGDDEE 108

RESULT 2

US-08-529-055-68
; Sequence 68, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York

Db 19 LAKQTGLEKLLDSLDPEGKTODELDKEAAEALDKADELQNKVADLEKEISNLEILLG 78

Qy 61 DAETNHVEDYIKEGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 79 GADP---ED-DTAAIQNKLATTTKAELEKTQKELDAALNELGPDGDEEE 122

Search completed: November 17, 2005, 20:37:53

Job time : 65.0187 secs


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OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF254255; AAF68090.1; -.
FT NON_TER 1
FT NON_TER 257
SQ SEQUENCE 257 AA; 28241 MW; 8470B68C949A133D CRC64;

Query Match 65.8%; Score 353.5; DB 2; Length 257;
Best Local Similarity 63.9%; Pred. No. 5.9e-14;
Matches 76; Conservative 13; Mismatches 19; Indels 11; Gaps 2;

Qy 1 LEKAGAGLENLSTLDPEGKTQDELKKAEE----AELNKKVEALPNOVALEELSKLE 56
Db 51 LEKAEAELENLSTLDPEGKTQDELKKAEDANIEALQNKVADLENKVAELDKVETRLQ 110

Qy 57 DNLKDAETNHVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDEE 108
Db 111 SDLKDAEENNVDDYKVEGLEKALTDKKVELNNTOKALDTAOKALDTALNELGPDGDEE 169

RESULT 10
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AC Q9LAX6;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC6303;
RX MEDLINE=20448953; PubMed=10992499;
RA DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
RT in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL: AF071820; AAF27715.1; -.
FT NON_TER 461
FT NON_TER 461
SQ SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;

Query Match 63.0%; Score 338.5; DB 2; Length 461;
Best Local Similarity 60.5%; Pred. No. 8.5e-13;
Matches 72; Conservative 15; Mismatches 21; Indels 11; Gaps 2;

Qy 1 LEKAGAGLENLSTLDPEGKTQDELKKAEE----AELNKKVEALPNOVALEELSKLE 56
Db 273 LEDAELEKVLATLDPEGKTQDELKKAEDANIEALQNKVADLENKVAELDKVETRLQ 332

Qy 57 DNLKDAETNHVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDEE 108
Db 333 SDLKDAEENNVDDYKVEGLEKALTDKKVELNNTOKALDTAOKALDTALNELGPDGDEE 391

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RESULT 11
Q9L595 PRELIMINARY; PRT; 256 AA.
AC Q9L595;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF254254; AAF68089.1; -.
FT NON_TER 1
FT NON_TER 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match 61.5%; Score 330.5; DB 2; Length 256;
Best Local Similarity 59.7%; Pred. No. 1.4e-12;
Matches 71; Conservative 15; Mismatches 22; Indels 11; Gaps 2;

Qy 1 LEKAGAGLENLSTLDPEGKTQDELKKAEE----AELNKKVEALPNOVALEELSKLE 56
Db 52 LEDAELEKVLATLDPEGKTQDELKKAEDANIEALQNKVADLENKVAELDKVETRLQ 111

Qy 57 DNLKDAETNHVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDEE 108
Db 112 SDLKDAEENNVDDYKVEGLEKALTDKKVELNNTOKALDTAOKALDTALNELGPDGDEE 170

RESULT 12
Q9KGS0 PRELIMINARY; PRT; 227 AA.
AC Q9KGS0;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RA Beall B.W.;
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF288751; AAF91495.1; -.

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DR ENBL; U89711; AAC62252.1; -.
DR HSP; P06653; LHCB.
DR InterPro; IPR002479; CW_binding.
DR InterPro; IPR002345; Lipocalin.
DR InterPro; IPR009053; Prefoldin.
DR Pfam; PF01473; CW_binding_1; 9.
DR PROSITE; PS00213; LIPOCALIN; UNKNOWN 1.
DR SQ SEQUENCE 653 AA; 73058 MW; CF147A96125120FA CRC64;

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Query Match      87.0%; Score 467; DB 2; Length 653;
Best Local Similarity 88.9%; Pred. No. 2.3e-20;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0

Qy 1 LKAGAGLNLSTLDPEGKTODELDKBAEALNKVEALPNQVALEELSKLELDNK 60
    : : : : : : : : : : : : : : : : : : : : : : : : : : : :
276 LDAELELEKVLATLDPEGKTODELDKBAEALNKVEALQNVAALEELSKLELDNK 335

Qy 61 DAETNHVEDYIKEGLEEAATKQAELEKTPKELDAAALNELPGDDEE 108
    : : : : : : : : : : : : : : : : : : : : : : : : : : : :
Db 336 DAETNNVEDYIKEGLEEAATKQAELEKTKELDAAALNELPGDDEE 383
    : : : : : : : : : : : : : : : : : : : : : : : : : : : :

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RESULT	8
Q8GNT0	
ID	Q8GNT0 PRELIMINARY; PRT; 211 AA.
AC	Q8GNT0;
DT	01-MAR-2003 (TReMBLrel. 23, Created)
DT	01-WAR-2003 (TReMBLrel. 23, Last sequence update)
DT	01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE	PspA (fragment).
OS	Name=pspA;
OC	Streptococcus pneumoniae.
OC	Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OX	NCBI_TaxID=1313;
RN	[1]_TaxID=1313;
RP	SEQUENCE FROM N.A.
RC	STRAIN=SP95;
RX	MEDLINE=22241996; PubMed=12354862;
RA	Licinzo G., Cherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
RA	Dorino G., Recchia S., Pantosti A., Beall B.;
RT	"Genotypes of invasive pneumococcal isolates recently recovered from
RT	Italian patients.";
RL	J. Clin. Microbiol. 40:3660-3665(2002).
DR	EMBL; AF490265; AAN37733.1; -.
FT	NON TER 1
FT	NON TER 1
FT	NON TER 1
FO	SEQUENCE 211 AA: 23207 MW: 096BFBE0B8CD6483 CRC64:

```

Query Match      65.8%; Score 353.5; DB 2; Length 211;
Best Local Similarity 63.9%; Pred. No. 4.9e-14;
Matches 76; Conservative 13; Mismatches 19; Indels 11; Gaps 2

QY      1 LEKAGAGLENLLSTLDPEGKTQDDELKEAAE---AELNKKVEALPNVALEELLELSKLE 56
Db      5 LEKAEAELENLLSTLDPEGKTQDDELKEAADVNIEMALQNKVADLENKVAELDKVEVRLQ 64

QY      57 DNLKDAETHVHYDIKGELEPAITKQAELEKT-----PKELDAALNELQPDGDEEE 108
Db      65 SDLKDAENNVYDIKGELEKALTDKKVELNNTQKALDTAQKALDTALNELQPDGDEEE 123

RESULT 9
Q9L594
ID      Q9L594      PRELIMINARY;      PRT;      257 AA.
AC      Q9L594;
DT      01-OCT-2000 (TRENBLrel. 15, Created)
DT      01-OCT-2000 (TRENBLrel. 15, Last sequence update)
DT      01-OCT-2003 (TRENBLrel. 25, Last annotation update)
DE      FspA (fragment).
GN      Name-pspA;
OS      Streptococcus pneumoniae.
OC      Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;

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RN  SEQUENCE FROM N.A.
RP  STRAIN=BG11703;
RX  MEDLINE=20448953; PubMed=10992499;
RY  DOI=10.1128/IAI.68.10.5889-5900.2000;
RA  Hollingshead S.K., Becker R., Briles D.E.;
RT  "Diversity of PspA: mosaic genes and evidence for past recombination
RL  in Streptococcus pneumoniae.";
DR  Infect. Immun. 68:5889-5900(2000).
DR  EMBL; AF071821; AAF27716.1; -.
DR  HSP; P58301; I18D.
FT  NON TER 481
SQ  SEQUENCE 481 AA; 53500 MW; EA3C66445EFCE2B CRC64;

Query Match      92.7%; Score 498; DB 2; Length 481;
Best Local Similarity 95.4%; Pred. No. 2.3e-22;
Matches 103; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY  1 LEKAGAGLENLSTLDPEGKTQDELKKAEEALNKKVEALPNQVAEEELSLEDNLK 60
DB  |||||
QY  61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB  |||||
QY  355 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 402
DB  |||||

RESULT 3
Q9LSB4
ID  Q9LSB4 PRELIMINARY; PRT; 246 AA.
AC  Q9LSB4;
DT  01-OCT-2000 (TrEMBLrel. 15, Created)
DT  01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DE  PspA (Fragment).
GN  Name=pspA;
OS  Streptococcus pneumoniae.
OC  Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OX  NCBI_TaxID=1313;
RN  SEQUENCE FROM N.A.
RP  STRAIN=SP198;
RX  MEDLINE=20472698; PubMed=11015380;
RA  Beall B.W.;
RT  Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.
DR  EMBL; AF253408; AAF67356.1; -.
DR  HSP; P05412; IJNM.
FT  NON TER 246
SQ  SEQUENCE 246 AA; 26972 MW; 2190EED1460D26D9 CRC64;

Query Match      92.0%; Score 494; DB 2; Length 246;
Best Local Similarity 94.4%; Pred. No. 2.1e-22;
Matches 102; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY  1 LEKAGAGLENLSTLDPEGKTQDELKKAEEALNKKVEALPNQVAEEELSLEDNLK 60
DB  |||||
QY  52 LEKAEAELENLSTLDPEGKTQDELKKAEEALNKKVEALPNQVAEEELSLEDNLK 111
DB  |||||
QY  61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB  |||||
QY  112 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 159
DB  |||||
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RESULT 4
Q8KQK2
ID  Q8KQK2 PRELIMINARY; PRT; 107 AA.
AC  Q8KQK2;
DT  01-OCT-2002 (TrEMBLrel. 22, Created)
DT  01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DE  Pneumococcal surface protein A (Fragment).
GN  Name=pspA;
OS  Streptococcus pneumoniae.
OC  Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OX  NCBI_TaxID=1313;
RN  SEQUENCE FROM N.A.
RP  STRAIN=255/00;
RX  MEDLINE=22170754; PubMed=12183557;
RY  DOI=10.1128/IAI.70.9.5086-5090.2002;
RA  Miyaji E.N., Ferreira D.M., Lopes A.P.Y., Brandileone M.C.C.,
RT  Dias W.O., Leite L.C.C.;
RT  "Analysis of serum cross-reactivity and cross-protection elicited by
RT  immunization with DNA vaccines against Streptococcus pneumoniae
RT  expressing PspA fragments from different clades.";
RL  Infect. Immun. 70:5086-5090(2002).
DR  EMBL; AY082390; AAJ92495.1; -.
FT  NON TER 1
SQ  SEQUENCE 107 AA; 11897 MW; 47913E25EE47D5CC CRC64;

Query Match      91.1%; Score 489; DB 2; Length 107;
Best Local Similarity 94.4%; Pred. No. 1.8e-22;
Matches 101; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY  1 LEKAGAGLENLSTLDPEGKTQDELKKAEEALNKKVEALPNQVAEEELSLEDNLK 60
DB  |||||
QY  61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 107
DB  |||||
QY  61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 107
DB  |||||

RESULT 5
Q9LAX3
ID  Q9LAX3 PRELIMINARY; PRT; 480 AA.
AC  Q9LAX3;
DT  01-OCT-2000 (TrEMBLrel. 15, Created)
DT  01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DE  PspA (Fragment).
GN  Name=pspA;
OS  Streptococcus pneumoniae.
OC  Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OX  NCBI_TaxID=1313;
RN  SEQUENCE FROM N.A.
RP  STRAIN=BG7561;
RX  MEDLINE=20448953; PubMed=10992499;
RY  DOI=10.1128/IAI.68.10.5889-5900.2000;
RA  Hollingshead S.K., Becker R., Briles D.E.;
RT  "Diversity of PspA: mosaic genes and evidence for past recombination
RL  in Streptococcus pneumoniae.";
DR  Infect. Immun. 68:5889-5900(2000).
DR  EMBL; AF071824; AAF27718.1; -.
DR  InterPro; IPR000533; TROPOMYOSIN.
DR  PRINTS; PR00194; TROPOMYOSIN.
FT  NON TER 480
SQ  SEQUENCE 480 AA; 53043 MW; DA013C9E0190D7A0 CRC64;

Query Match      88.1%; Score 473; DB 2; Length 480;
Best Local Similarity 90.7%; Pred. No. 7.4e-21;
Matches 98; Conservative 4; Mismatches 6; Indels 0; Gaps 0;
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Result No.	Score	Query %			DB	ID	Description
		Match	Length	Count			
1	498	92.7	479	2	Q9LAX2	Q9LAX2 streptococc	
2	498	92.7	481	2	Q9LAX5	Q9LAX5 streptococc	
3	494	92.0	246	2	Q9L5B4	Q9L5B4 streptococc	
4	489	91.1	107	2	Q8KQK2	Q8KQK2 streptococc	
5	473	88.1	480	2	Q9LAX3	Q9LAX3 streptococc	
6	467	87.0	213	2	Q8GNS7	Q8GNS7 streptococc	
7	467	87.0	653	2	Q34097	Q34097 streptococc	
8	353.5	65.8	211	2	Q8GNT0	Q8GNT0 streptococc	
9	353.5	65.8	237	2	Q9L594	Q9L594 streptococc	
10	338.5	63.0	461	2	Q9LAX6	Q9LAX6 streptococc	
11	330.5	61.5	256	2	Q9L595	Q9L595 streptococc	
12	327.5	61.0	227	2	Q9KGS0	Q9KGS0 streptococc	
13	325	60.5	222	2	Q9L584	Q9L584 streptococc	
14	323	60.1	242	2	Q9L562	Q9L562 streptococc	
15	311	57.9	209	2	Q9L593	Q9L593 streptococc	
16	308	57.4	231	2	Q9L579	Q9L579 streptococc	
17	308	57.4	241	2	Q9L580	Q9L580 streptococc	
18	306	57.0	228	2	Q9L5B8	Q9L5B8 streptococc	
19	306	57.0	235	2	Q9L582	Q9L582 streptococc	
20	306	57.0	242	2	Q9L5D4	Q9L5D4 streptococc	
21	306	57.0	229	2	Q9L583	Q9L583 streptococc	
22	306	57.0	360	2	Q8KQK3	Q8KQK3 streptococc	
23	306	57.0	429	2	Q9LAX7	Q9LAX7 streptococc	
24	306	57.0	526	2	Q9LAX9	Q9LAX9 streptococc	
25	306	57.0	608	2	Q8VO55	Q8VG55 streptococc	
26	306	57.0	744	2	Q97T39	Q97T39 streptococc	
27	304	56.6	249	2	Q9L5B7	Q9L5B7 streptococc	
28	304	56.6	502	2	Q9LAX8	Q9LAX8 streptococc	
29	303	56.4	249	2	Q9L585	Q9L585 streptococc	
30	303	56.4	256	2	Q9L590	Q9L590 streptococc	
31	205	38.2	417	2	Q9LAX3	Q9LAX3 streptococc	

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A:Title: Differential expression of non-muscle myosin heavy chain genes during Xenopus e
A:Reference number: A59282; MUID:99077683; PMID:9858676
A:Accession: A59282
A:Status: preliminary; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-1964 <BNA>
A:Cross-references: UNIPROT:Q93522; GB:AF055895; NID:g3660671; PIDN:AAC03556.1; PID:g366
A:Experimental source: cell line XTC
C:Superfamily: myosin heavy chain; myosin motor domain homology
F:84-764/Domain: myosin motor domain homology <MMO>

Query Match 20.2%; Score 108.5; DB 2; Length 1964;
Best Local Similarity 30.3%; Pred. No. 23;
Matches 30; Conservative 23; Mismatches 35; Indels 11; Gaps 3;

Qy 8 LENLSTLDPEKGTODELKEAAEALNKKVKEALPNQVALEELSKLED-----NLK 60
Db 1506 MEDLVSSKDDVGVKSVEHELEK--SKRALEQQAEEMTKQLLEELEDELQATDAKLRLVNLQ 1563

Qy 61 DAETHNVVDYIKEGLEEAIAATKQAELEKTPKELDAALNE 99
Db 1564 AMKAQFERDL--QGRDEQSEDKKQLVRQVKEMEALELD 1600

RESULT 10
S23325
M2 protein precursor - Streptococcus pyogenes
A:Species: Streptococcus pyogenes
A:Variety: serotype M2
C:Date: 22-Nov-1993 #sequence revision 10-Nov-1995 #text_change 09-Jul-2004
C:Accession: S23325; S35761; S61078; S60785
R:Bessen, D.E.; Fischetti, V.A.
Infect. Immun. 60, 124-135, 1992
A:Title: Nucleotide sequences of two adjacent M or M-like protein genes of group A strep
A:Reference number: S23325; MUID:92104662; PMID:1370269
A:Accession: S23325
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-407 <BES>
A:Cross-references: UNIPROT:P50468; EMBL:X61276; NID:g47369; PIDN:CAA43581.1; PID:g47370
R:Podbielski, A.
submitted to the EMBL Data Library, November 1992
A:Reference number: S35760
A:Accession: S35761
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-17 <POD>
A:Cross-references: EMBL:X69324
R:Whatmore, A.; Kapur, V.; Sullivan, D.; Musser, J.; Kehoe, M.
submitted to the EMBL Data Library, July 1994
A:Description: Noncongruent relationships between variation in emml gene sequences and t
A:Reference number: S61072
A:Accession: S61078
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 12-94 <WHA>
A:Cross-references: EMBL:U11958; NID:G533593; PIDN:AAA99574.1; PID:g1235820
R:Whatmore, A.M.; Kapur, V.; Sullivan, D.J.; Musser, J.M.; Kehoe, M.A.
Mol. Microbiol. 14, 619-631, 1994
A:Title: Non-congruent relationships between variation in emm gene sequences and the pop
A:Reference number: S60784; MUID:95198537; PMID:7891551
A:Accession: S60785
A:Status: preliminary; nucleic acid sequence not shown
A:Molecule type: DNA
A:Residues: 31-89 <WH2>
A:Cross-references: EMBL:U11958
C:Superfamily: M5 protein

Query Match 20.1%; Score 108; DB 2; Length 407;
Best Local Similarity 29.9%; Pred. No. 47;
Matches 35; Conservative 16; Mismatches 36; Indels 30; Gaps 3;

Qy 5 GAGLENLSTLDPEKGTODELKEA--AEALNKKVKEALPNQVALEELSKLEDNLKDA 62

Db 30 GAGPAN-QTTVKANSKNPVPVKKEAKLSEALHDKIKNLEEKAELEFKLDKVEEHKKV 88
Qy 63 ETNHNVEDYIK-----EGLEEAIAATKQAELEKTPKE 92
Db 89 EEEHKDHEKLEKKSDEVERHYLRQLDQYKEQQRQKNLEELERQSQREVEKEKYQE 145

RESULT 11
C70445
ATPase subunit of ATP-dependent proteinase (EC 3.4.-.-) - Aquifex aeolicus
A:Species: Aquifex aeolicus
C:Date: 08-May-1998 #sequence_revision 08-May-1998 #text_change 09-Jul-2004
A:Accession: C70445
R:Deckert, G.; Warren, P.V.; Gaasterland, T.; Young, W.G.; Lenox, A.L.; Graham, D.E.; V.
Nature 392, 353-358, 1998
A:Title: The complete genome of the hyperthermophilic bacterium Aquifex aeolicus.
A:Reference number: A70300; MUID:98196666; PMID:9537320
A:Status: preliminary; nucleic acid sequence not shown; translation not shown
A:Molecule type: DNA
A:Residues: 1-1006 <AQF>
A:Cross-references: UNIPROT:O67588; GB:AE000750; NID:g2983999; PIDN:AAC07550.1; PID:g298
A:Experimental source: strain VFS
C:Genetics:
A:Gene: clpB
C:Superfamily: endopeptidase Clp ATP-binding chain
C:Keywords: hydrolase

Query Match 19.9%; Score 107; DB 2; Length 1006;
Best Local Similarity 31.8%; Pred. No. 14;
Matches 34; Conservative 16; Mismatches 35; Indels 22; Gaps 4;

Qy 20 KTOBELKEAAEALNKKVKEALPNQVALEELSKLEDNLKDAETHNVVDYIKEG---LE 76
Db 522 KAITDALDQAAARKKL--KVIGTPPEIQEIERKIKALEEQI--IFANLKG DYKEAQLKIE 577

Qy 77 EA-----IATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 578 KAKLEKEQBELLGKVGVEAKIAELKKKIBELDEKIKEAAEAKG DYK 624

RESULT 12
A59234
slow myosin heavy chain 3 - quail
C:Species: Coturnix coturnix
C:Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 08-Sep-2000
C:Accession: A59234
R:Nikovits Jr., W.; Wang, G.F.; Feldman, J.L.; Miller, J.B.; Wade, R.; Nelson, L.; Stock
J. Biol. Chem. 271, 17047-17056, 1996
A:Title: Isolation and characterization of an avian slow myosin heavy chain gene express
A:Reference number: A59234; MUID:96291845; PMID:8663323
A:Accession: A59234
A:Status: preliminary; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-1931 <NIK>
A:Cross-references: GB:U53862; NID:g1289513; PIDN:AAC59912.1; PID:g1289514
C:Superfamily: myosin heavy chain; myosin motor domain homology
F:81-761/Domain: myosin motor domain homology <MMO>

Query Match 19.9%; Score 107; DB 2; Length 1931;
Best Local Similarity 36.0%; Pred. No. 28;
Matches 41; Conservative 19; Mismatches 36; Indels 18; Gaps 6;

Qy 1 LEKAGAGLE---NLLSTLDPEKGTODELKEAAEALNKKVKEALPNQVALEELSKLE 56
Db 1015 LAKAKVLEQQADDDLESSLQOEKKIR--MLERAKRKLEGLDKLAQSVMDLENDKQOLE 1072

Qy 57 DNL--KDAETHNVVDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 1073 ERUKKKQFELNTLNARIED--EQAIA---AQLQKKLQELQARIEEL-----EEE 1116

A;Cross-references: UNIPROT:Q54972; UNIPROT:Q8DRI0; GB:AE007317; PIDN:AAK98925.1; PID:gl
C;Genetics:
A;Gene: pspA

Query Match 36.7%; Score 197; DB 2; Length 619;
Best Local Similarity 45.0%; Pred. No. 1.6e-05;
Matches 50; Conservative 18; Mismatches 25; Indels 18; Gaps 3;

Qy 6 AGLENLLSTLDPEGKTQDELQKE-----AAAEALNKKVEALPNQVAELE 49
Db 210 AELENQVHRLEQELKEIDSESESDYAKSGFRAPLQSKLDAAKAKLS-KLEELSDKIDELD 268

Qy 50 BELSKLENLQDA-ETNHVEDYIKGLEBEATATQAELEKTPKELDAAALNE 99
Db 269 AEIAKLEQLKAAEENNVEDYFKEGLEKTTAAKKAEELEKTEADLKAVNE 319

RESULT 3
A41971
surface protein pspA precursor - Streptococcus pneumoniae
N;Alternate names: pneumococcal surface protein A
C;Species: Streptococcus pneumoniae
C;Date: 04-Mar-1993 #sequence revision 18-Nov-1994 #text_change 09-Jul-2004
C;Accession: A41971; A60282; A33134
R;Yother, J.; Briles, D.E.
J. Bacteriol. 174, 601-609, 1992
A;Title: Structural properties and evolutionary relationships of PspA, a surface protein
A;Reference number: A41971; MUID:92105030; PMID:1729249
A;Accession: A41971
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-619 <YOT>
A;Cross-references: UNIPROT:Q54972; UNIPROT:Q8DRI0; GB:M74122; NID:9153840; PIDN:AAA2701
A;Note: sequence extracted from NCBI backbone (NCBI:75635, NCBI:75636)
R;Talkington, D.F.; Crimmins, D.L.; Voellinger, D.C.; Yother, J.; Briles, D.E.
Infect. Immun. 59, 1285-1289, 1991
A;Title: A 43-kilodalton pneumococcal surface protein, PspA: isolation, protective ability
A;Reference number: A60282; MUID:91169598; PMID:2004810
A;Accession: A60282
A;Molecule type: protein
A;Residues: 32-76 <TAL>
A;Experimental source: strain JY2008
C;Genetics:
A;Gene: pspA
F;1-31/Domain: signal sequence #status predicted <SIG>
F;32-619/Product: surface protein pspA #status predicted <MAT>
F;411-430/Domain: cpl repeat homology <CP01>
F;431-450/Domain: cpl repeat homology <CP02>
F;451-470/Domain: cpl repeat homology <CP03>
F;471-490/Domain: cpl repeat homology <CP04>
F;491-510/Domain: cpl repeat homology <CP05>
F;511-530/Domain: cpl repeat homology <CP06>
F;531-550/Domain: cpl repeat homology <CP07>
F;551-570/Domain: cpl repeat homology <CP08>
F;571-591/Domain: cpl repeat homology <CP09>
F;592-611/Domain: cpl repeat homology <CP10>

Query Match 36.7%; Score 197; DB 2; Length 619;
Best Local Similarity 45.0%; Pred. No. 1.6e-05;
Matches 50; Conservative 18; Mismatches 25; Indels 18; Gaps 3;

Qy 6 AGLENLLSTLDPEGKTQDELQKE-----AAAEALNKKVEALPNQVAELE 49
Db 210 AELENQVHRLEQELKEIDSESESDYAKSGFRAPLQSKLDAAKAKLS-KLEELSDKIDELD 268

Qy 50 BELSKLENLQDA-ETNHVEDYIKGLEBEATATQAELEKTPKELDAAALNE 99
Db 269 AEIAKLEQLKAAEENNVEDYFKEGLEKTTAAKKAEELEKTEADLKAVNE 319

RESULT 4
D71453
hypothetical protein PH0283 - Pyrococcus horikoshii

A;Cross-references: UNIPROT:Q54972; UNIPROT:Q8DRI0; GB:AE007317; PIDN:AAK98925.1; PID:gl
C;Genetics:
A;Gene: pspA

Query Match 36.7%; Score 197; DB 2; Length 619;
Best Local Similarity 45.0%; Pred. No. 1.6e-05;
Matches 50; Conservative 18; Mismatches 25; Indels 18; Gaps 3;

Qy 6 AGLENLLSTLDPEGKTQDELQKE-----AAAEALNKKVEALPNQVAELE 49
Db 210 AELENQVHRLEQELKEIDSESESDYAKSGFRAPLQSKLDAAKAKLS-KLEELSDKIDELD 268

Qy 50 BELSKLENLQDA-ETNHVEDYIKGLEBEATATQAELEKTPKELDAAALNE 99
Db 269 AEIAKLEQLKAAEENNVEDYFKEGLEKTTAAKKAEELEKTEADLKAVNE 319

RESULT 4
D71453
hypothetical protein PH0283 - Pyrococcus horikoshii

C;Species: Pyrococcus horikoshii
C;Date: 14-Aug-1998 #sequence_revision 14-Aug-1998 #text_change 09-Jul-2004
C;Accession: D71453
R;Kawarabayashi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamoto, S.; Sekin
M.; Ohfuku, Y.; Funahashi, T.; Tanaka, T.; Kudoh, Y.; Yamazaki, J.; Kushida, N.; Oguchi
DNA Res. 5, 55-76, 1998
A;Title: Complete sequence and gene organization of the genome of a hyper-thermophilic
A;Reference number: A71000; MUID:98344137; PMID:9679194
A;Accession: D71453
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
A;Molecule type: DNA
A;Residues: 1-279 <KAW>
A;Cross-references: UNIPROT:O58021; GB:AP000001; NID:93236128; PIDN:BA29355.1; PID:g325
A;Experimental source: strain OT3
A;Note: this accession replaces an interim accession for a sequence replaced by GenBank
C;Genetics:
A;Gene: PH0283

Query Match 20.9%; Score 112; DB 2; Length 279;
Best Local Similarity 31.9%; Pred. No. 1.8;
Matches 38; Conservative 21; Mismatches 42; Indels 18; Gaps 4;

Qy 1 LEKAGAGLENLLSTLDPEGKTQDELQKEAAAEALN-----KKVEALPNQVAELEEEEL 52
Db 164 LEKAKEIEELKERITETLEKEKKELEKESKVKLMEYAKAKKVBELKELKEYEKS 223

Qy 53 SKLEDNLKDAETNHVE-DYIKGLEEAEIATQAELE-----KTPKELDAALNELGPDG 104
Db 224 REIEGRKDYEEKIRELEEBEKKGLEEKINLENRIENLKNIGIRSAKE---ALERLLEEG 279

RESULT 5
T14156
kinesin-related protein - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 20-Sep-1999 #sequence_revision 20-Sep-1999 #text_change 09-Jul-2004
C;Accession: T14156
R;Wood, K.W.; Sakowicz, R.; Goldstein, L.S.; Cleveland, D.W.
Cell 91, 357-366, 1997
A;Title: CENP-E is a plus end-directed kinetochore motor required for metaphase chromoso
A;Reference number: Z17893; MUID:98028574; PMID:9363944
A;Accession: T14156
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-2954 <WOO>
A;Cross-references: UNIPROT:O42263; EMBL:AF027728; NID:g2586070; PID:g2586071; PIDN:AAAC
C;Genetics:
A;Gene: XCENP-E
C;Superfamily: centromere protein E; kinesin motor domain homology

Query Match 20.8%; Score 111.5; DB 2; Length 2954;
Best Local Similarity 28.9%; Pred. No. 23;
Matches 33; Conservative 21; Mismatches 39; Indels 21; Gaps 3;

Qy 2 EKAGAGLENLLSTLDPE-----GKTQDELQKEAAAEALNKKVEALPNQVAELEEBLSKLED 57
Db 1952 EQALANTEHLRETLLKSKDLALGKMEQERDEAA-----NKVIALTEKMSLEEQINENVT 2005

Qy 58 NLKDAETNHVEDYIK-----EGLEEAATQAELEKTPKELDAALNEL 100
Db 2006 TLKEGEGETTFYLQRPSSQSSQMBELRESLTKDLQLEAEKEISEATNEI 2059

RESULT 6
A61231
myosin heavy chain nonmuscle form A - human
N;Alternate names: cellular myosin heavy chain; myosin type 9; NMHC-A
N;Contains: myosin ATPase (FC 3.6.4.1)
C;Species: Homo sapiens (man)
C;Date: 12-May-1994 #sequence_revision 14-Jul-1994 #text_change 09-Jul-2004
A;Accession: A61231; A34876; I52562; I61692
R;Simons, M.; Wang, M.; McBride, O.W.; Kawamoto, S.; Yamakawa, K.; Gdula, D.; Adelstein,
Circ. Res. 69, 530-539, 1991

GenCore version 5.1.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 20:04:33 ; Search time 14.1144 Seconds
(without alignments)
736.230 Million cell updates/sec

Title: US-10-674-755-24
Perfect score: 537
Sequence: 1 LEKAGAGLENLLSTLDPEGK.....TPKELDAALNELGPDGDEEE 108

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues
Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR 79:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	306	57.0	744	2 F95013	pneumococcal surfa
2	197	36.7	619	2 A97887	surface protein ps
3	197	36.7	619	2 A1971	surface protein ps
4	112	20.9	279	2 D71453	hypothetical prote
5	111.5	20.8	2954	2 T14156	kinesin-related pr
6	110.5	20.6	1961	1 A61231	myosin heavy chain
7	110	20.5	1938	1 A40997	myosin heavy chain
8	109	20.3	388	2 A46173	Mrp4 protein - Str
9	108.5	20.2	1964	2 A5282	nonmuscle myosin I
10	108	20.1	407	2 S23325	M2 protein precurs
11	107	19.9	1006	2 C70445	ATPase subunit of
12	107	19.9	1931	2 A59234	slow myosin heavy
13	105	19.6	1992	2 A47297	myosin heavy chain
14	105	19.6	2139	2 T18296	myosin heavy chain
15	104	19.4	415	2 S35760	fcra protein precu
16	104	19.4	1959	1 A33977	myosin heavy chain
17	104	19.4	1976	2 A59252	myosin heavy chain
18	103.5	19.3	281	2 F75216	hypothetical prote
19	103.5	19.3	779	2 C96805	hypothetical prote
20	103.5	19.3	1938	2 J05421	smooth muscle myos
21	103.5	19.3	1972	2 J05420	smooth muscle myos
22	103.5	19.3	1979	1 S03166	myosin heavy chain
23	103.5	19.3	2007	1 B43402	myosin heavy chain
24	103	19.2	501	2 A38650	myosin heavy chain
25	102	19.0	399	2 E71169	hypothetical prote
26	102	19.0	405	2 A33939	PC gamma (IgG) rec
27	101.5	18.9	1177	2 B75150	chromosome segrega
28	101	18.8	516	2 B84709	hypothetical prote
29	100.5	18.7	1940	2 A59287	myosin heavy chain

30	100	18.6	583	2 AH1922	hypothetical prote
31	100	18.6	663	2 T03581	dnak-type molecula
32	99.5	18.5	233	2 S70531	bbk2.11 protein pr
33	99.5	18.5	527	2 S33068	myosin heavy chain
34	99.5	18.5	1388	2 T30335	Klp2 protein - Afr
35	99	18.4	173	2 A81694	cationic outer mem
36	99	18.4	387	2 S57834	fcra protein precu
37	99	18.4	484	2 B33501	myosin heavy chain
38	99	18.4	1170	2 A72887	hypothetical prote
39	99	18.4	1269	2 F84730	probable myosin he
40	99	18.4	1837	2 T41023	probable nuclear p
41	99	18.4	1972	1 A41604	myosin heavy chain
42	98.5	18.3	1999	1 S21801	myosin heavy chain
43	98	18.2	178	2 AH2643	conserved hypothet
44	98	18.2	178	2 H97425	hypothetical prote
45	98	18.2	611	2 S09500	dnak-type molecula

ALIGNMENTS

RESULT 1

F95013
pneumococcal surface protein A [imported] - Streptococcus pneumoniae (strain TIGR4)
C:Species: Streptococcus pneumoniae
C:Date: 03-Aug-2001 #sequence_revision 03-Aug-2001 #text_change 09-Jul-2004
C:Accession: F95013
R:Tettelin, H.; Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Read, T.D.; Peterson, S.; Heic
on, J.D.; Umayam, L.A.; White, O.; Salzberg, S.L.; Lewis, M.R.; Radune, D.; Holtzapple,
nson, T.; Hickey, E.K.; Holt, I.E.
Science 293, 498-506, 2001
A:Authors: Loftus, B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; Dougherty, B.A.; Morrison,
A:Title: Complete Genome Sequence of a virulent isolate of Streptococcus pneumoniae.
A:Reference number: A95000; MUID:21357209; PMID:11463916
A:Accession: F95013
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-744 <KUR>
A:Cross-references: UNIPROT:Q97T39; GB:AE005672; PIDN:AAK74303.1; PID:g14971584; GSPDB:
A:Experimental source: strain TIGR4
C:Genetics:
A:Gene: SP0117

Query Match	57.0%;	Score 306;	DB 2;	Length 744;
Best Local Similarity	63.9%;	Pred. No. 2.3e-12;		
Matches	69;	Conservative	12;	Mismatches 23;
			Indels	4;
			Gaps	2;
QY	1	LEKAGAGLENLLSTLDPEGKTQDELDPKAEAEALNKKVEALPNQVAEELEELSKELEDNLK	60	
Db	346	LAKQTELEKLLDSLDPGKTQDELDPKAEAEALNKKVEALPNQVAEELEELSKELEDNLK	405	
QY	61	DAETHNVEDYIKEGLEAIAIKQAELEKTPKELDAALNELGPDGDEEE	108	
Db	406	GADS---ED-DTAALQNKLATKAELEKTKELDAALNELGPDGDEEE	449	

RESULT 2

A97887
surface protein pspA precursor [imported] - Streptococcus pneumoniae (strain R6)
C:Species: Streptococcus pneumoniae
C:Date: 22-Oct-2001 #sequence_revision 22-Oct-2001 #text_change 09-Jul-2004
C:Accession: A97887
R:Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blaszcak, L.; Burgett, S.; DeHoff, B.S.; E
e, R.; LeBlanc, D.J.; Lee, L.N.; Lefkowitz, E.J.; Lu, J.; Matsushima, P.; McAhren, S.; M
Y, P.; Sun, P.M.; Winkler, M.E.
J. Bacteriol. 183, 5709-5717, 2001
A:Authors: Yang, Y.; Young-Bellido, M.; Zhao, G.; Zook, C.; Baltz, R.H.; Jaskunas, S.R.;
A:Title: Genome of the Bacterium Streptococcus pneumoniae Strain R6.
A:Reference number: A97872; MUID:21429245; PMID:11544234
A:Accession: A97887
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-619 <KUR>

Search completed: November 17, 2005, 20:19:42
Job time : 77.7468 secs

Db 336 DAETNNVEDYIKGLEEEAATKKALEKTKQKBLDAALNELGPDGDEEE 383

RESULT 13

AAW14590

ID AAW14590 standard; protein; 233 AA.

XX AAW14590;

XX AC

XX DT 17-OCT-2003 (revised)

XX DT 28-OCT-1997 (first entry)

XX DE Streptococcus pneumoniae PspA central region.

XX KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;

XX KW bacteraemia; pneumonia.

XX OS Streptococcus pneumoniae; strain Ef5668.

XX PN WO9709994-A1.

XX PD 20-MAR-1997.

XX PF 16-SEP-1996; 96WO-US014819.

XX PR 15-SEP-1995; 95US-00529055.

XX PA (UABR-) UAB RES FOUND.

XX PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;

XX PI Hollingshead S, Tart R, Brooks-Walter A;

XX XX WPI; 1997-202002/18.

XX PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used

XX PT in vaccines for protecting animals against S.pneumoniae infection.

XX PS Example 6; Fig 13; 296pp; English.

XX CC This sequence shows the central portion, including the C-terminus of the

XX CC alpha-helix region and some of the proline-rich region, of pneumococcal

XX CC surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see

XX CC also AAW14592). Comparison of the N-terminal and central regions

XX CC (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains

XX CC can be used to divide the strains into several families based on sequence

XX CC homologies. PspA polypeptides, or fragments of them, can be used in

XX CC vaccines to protect animals against S. pneumoniae infection and hence for

XX CC the prevention of diseases such as otitis media, meningitis, bacteraemia

XX CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical

XX CC region and the immediate 5' tip of the coding sequence are likely to be

XX CC the critical sequences for predicting PspA cross-reactions and vaccine

XX CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX SQ Sequence 233 AA;

XX Query Match 85.0%; Score 456.5; DB 2; Length 233;

XX Best Local Similarity 88.1%; Pred. No. 6e-32;

XX Matches 96; Conservative 5; Mismatches 7; Indels 1; Gaps 1;

XX QY 1 LEKAGAGLENLLSTLDP-EGKTQDELKKAAPAEALNKKVEALPNQVALEEEELSKLEDNL 59

XX Db 51 LEDAELEKVLATLDPEGKTQDELKKAAPAEALNKKVEALPNQVALEEEELSKLEDNL 110

XX QY 60 KDAETHNVEDYIKGLEEEAATKKALEKTKQKBLDAALNELGPDGDEEE 108

XX Db 111 KDAETHNVEDYIKGLEEEAATKKALEKTKQKBLDAALNELGPDGDEEE 159

XX RESULT 14

XX ABW02623

XX ID ABW02623 standard; protein; 185 AA.

XX XX

XX AC ABW02623;

XX 12-FEB-2004 (first entry)

XX Bg7561c pneumococcal surface protein A (PspA) central region.

XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;

XX immunological; gene therapy; immunostimulant.

XX Unidentified.

XX Key Location/Qualifiers

XX FT Misc-difference 45

XX FT /label= Unknown

XX US6592876-B1.

XX PD 15-JUL-2003.

XX PF 15-SEP-1995; 95US-00529055.

XX PR 20-APR-1993; 93US-00048896.

XX PR 06-JUN-1995; 95US-00465746.

XX PA (UABR-) UAB RES FOUND.

XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;

XX WPI; 2003-862841/80.

XX Immunological composition for obtaining expression products used for

XX detecting the presence of Streptococcus pneumoniae or its strain,

XX comprises at least two different full length isolated gene encoding

XX pneumococcal surface protein A.

XX Example 6; SEQ ID NO 69; 121pp; English.

XX The present invention relates to an immunological composition comprising

XX at least 2 different full length isolated genes encoding pneumococcal

XX surface protein A (PspAs) from different groups based on restriction

XX fragment polymorphism analysis. The invention is useful for obtaining

XX expression products by recombinant techniques to detect, determine,

XX isolate or diagnose the presence of Streptococcus pneumoniae or its

XX strain. The expression product is useful for preparing antigenic,

XX immunological or vaccine compositions, for eliciting antibodies, an

XX immunological response (other than or additional to antibodies) or a

XX protective response (including antibody or other immunological response

XX by administering compositions to a host). The invention is also useful as

XX vaccines and in gene therapy. The present sequence is Bg7561c

XX pneumococcal surface protein A (PspA) central region. This sequence is

XX used in the exemplification of the invention

XX SQ Sequence 185 AA;

XX Query Match 81.8%; Score 439; DB 7; Length 185;

XX Best Local Similarity 84.1%; Pred. No. 1.6e-30;

XX Matches 90; Conservative 5; Mismatches 12; Indels 0; Gaps 0;

XX QY 2 EKAGAGLENLLSTLDP-EGKTQDELKKAAPAEALNKKVEALPNQVALEEEELSKLEDNL 61

XX Db 1 KKQKVNLENLLSTLDP-EGKTQDELKKAAPAEALNKKVEALPNQVALEEEELSKLEDNL 60

XX QY 62 AETHNVEDYIKGLEEEAATKKALEKTKQKBLDAALNELGPDGDEEE 108

XX Db 61 AETHNVEDYIKGLEEEAATKKALEKTKQKBLDAALNELGPDGDEEE 107

XX RESULT 15

XX AAW14589

XX ID AAW14589 standard; protein; 184 AA.

XX XX

XX AC AAW14589;

XX XX

XX DT 17-OCT-2003 (revised)

CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is EF5688 pneumococcal
CC surface protein A (PspA) used in the exemplification of the invention
XX
SQ Sequence 458 AA;

Query Match 87.0%; Score 467; DB 7; Length 458;
Best Local Similarity 88.9%; Pred. No. 1.6e-32;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;
QY 1 LEKAGAGLENLSTLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 335
QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 336 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 383

RESULT 11
ADK52495
ID ADK52495 standard; protein; 653 AA.
XX
AC ADK52495;
XX
DT 20-MAY-2004 (first entry)
XX
DE PspA molecule from the Rx1 strain of Streptococcus pneumoniae.
XX
KW Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
OS Streptococcus pneumoniae.
XX
PN WO2004016231-A2.
XX
PD 26-FEB-2004.
XX
PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE;
XX
DR WPI; 2004-192068/18.
XX
PT Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
PS Claim 17; SEQ ID NO 1; 41pp; English.

XX The present invention relates to treating Streptococcus pneumoniae
XX infection in a subject lacking a functional spleen comprises
XX administering an antibody that recognizes pneumococcal surface protein A
XX (PspA) or its binding portion. The method is useful for treating or
XX preventing Streptococcus pneumoniae infection in a subject lacking a
XX functional spleen. The disease-associated injury is especially due to
XX hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
XX anemia or Hodgkin's disease. The present sequence represents PspA
XX molecule from the Rx1 strain of Streptococcus pneumoniae.

XX Sequence 653 AA;
Query Match 87.0%; Score 467; DB 8; Length 653;
Best Local Similarity 88.9%; Pred. No. 2.4e-32;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 335
QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108

DB 276 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 335
QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 336 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 383

RESULT 12
ADOS2080
ID ADOS2080 standard; protein; 653 AA.
XX
AC ADOS2080;
XX
DT 12-AUG-2004 (first entry)
XX
DE S. pneumoniae strain EF5688 PspA protein.
XX
KW Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.
XX
OS Streptococcus pneumoniae.
XX
FH Key Location/Qualifiers
FT Peptide 1..31
FT Protein /label= Signal_peptide
FT Protein 32..653
FT Domain /note= "S. pneumoniae strain EF5688 mature PspA protein"
FT Domain 110..384
FT /note = PspA alpha-helical domain
XX
PN US2004101531-A1.
XX
PD 27-MAY-2004.
XX
PP 15-APR-2003; 2003US-00414532.
XX
PR 16-APR-2002; 2002US-0372710P.
XX
PA (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX
DR WPI; 2004-399655/37.
DR N-PSDB; ADOS2067.
XX
PT New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
PS Example 5; SEQ ID NO 26; 94pp; English.

XX The invention relates to immunogenic compositions and vaccines comprising
XX a live attenuated strain of pathogenic gram negative bacteria that
XX secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
XX response in a vertebrate against pathogens, e.g., helminths, fungi,
XX viruses, protozoans or bacteria. The present sequence is Streptococcus
XX pneumoniae strain EF5688 pneumococcal surface protein A (PspA). This
XX sequence is used in the exemplification of the invention.

XX Sequence 653 AA;
Query Match 87.0%; Score 467; DB 8; Length 653;
Best Local Similarity 88.9%; Pred. No. 2.4e-32;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKEALPNQVALEELSKLEDNLK 335
QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108

DR WPI; 2004-192068/18.
XX Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
XX
PS Claim 17; SEQ ID NO 2; 41pp; English.
XX
CC The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface protein A
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents the alpha
CC helical region PspA molecule from the Rxi strain of Streptococcus
CC pneumoniae.
XX
XX Sequence 369 AA;
SQ
Query Match 87.0%; Score 467; DB 8; Length 369;
Best Local Similarity 88.9%; Pred. No. 1.2e-32;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;
QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAEALNKVEALPNQVAELEEEELSKLEDNLK 60
DB 245 LEDAELEKVLATLDPEGKTQDELDKAAEALNKVEALQNVAELEEEELSKLEDNLK 304
QY 61 DAETHNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
DB 305 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 352
RESULT 9
AAW14592
ID AAW14592 standard; protein; 458 AA.
AC AAW14592;
XX
XX
DT 17-OCT-2003 (revised)
DT 27-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA surface protein.
DE
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
XX Streptococcus pneumoniae; strain Ef5668.
OS
XX WO9709994-A1.
PN
XX
XX 20-MAR-1997.
PD
XX
XX 16-SEP-1996; 96WO-US014819.
PF
XX
XX 15-SEP-1995; 95US-00529055.
PR
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
DR N-PSDB; AAT61724.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
PT
XX Disclosure; Fig 13; 296pp; English.
PS
XX This sequence comprises the pneumococcal surface protein A (pspA) of
CC Streptococcus pneumoniae strain Ef5668. The sequence was deduced from the

CC pspA gene (AAT61724). PspA polypeptides, or fragments of them, can be
CC used in vaccines to protect animals against S. pneumoniae infection and
CC hence for the prevention of diseases such as otitis media, meningitis,
CC bacteraemia and pneumonia. (Updated on 17-OCT-2003 to standardise OS
CC field)
XX
XX Sequence 458 AA;
SQ
Query Match 87.0%; Score 467; DB 2; Length 458;
Best Local Similarity 88.9%; Pred. No. 1.6e-32;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;
QY 1 LEKAGAGLENLSTLDPEGKTQDELDKAAEALNKVEALPNQVAELEEEELSKLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDKAAEALNKVEALQNVAELEEEELSKLEDNLK 335
QY 61 DAETHNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
DB 336 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 383
RESULT 10
ABW02626
ID ABW02626 standard; protein; 458 AA.
XX
XX AC ABW02626;
XX
XX DT 12-FEB-2004 (first entry)
XX
XX Ef5668 pneumococcal surface protein A (PspA).
DE
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
XX Unidentified.
OS
XX
XX
FH Key Location/Qualifiers
FT Misc-difference 458
FT /note= "Encoded by GC"
XX
XX US\$592876-B1.
PN
XX
XX 15-JUL-2003.
PD
XX
XX 15-SEP-1995; 95US-00529055.
PF
XX
XX 20-APR-1993; 93US-00048896.
PR
XX 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI
XX WPI; 2003-862841/80.
DR N-PSDB; AAD64535.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
XX pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 73; 121pp; English.
PS
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response

XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
FN US5592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX WPI; 2003-862841/80.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
PS Example 6; SEQ ID NO 70; 121bp; English.
XX
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef5668c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 232 AA;

Query Match 87.0%; Score 467; DB 7; Length 232;
Best Local Similarity 88.9%; Pred. No. 7.2e-33;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLSTLDPEGKTQDELKKEAAEALNKKVEALPNOVAEEELSLEDNLK 60
Db 51 LEDAELEKVLATLDPEGKTQDELKKEAAEALNKKVEALPNOVAEEELSLEDNLK 110

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 111 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 158

RESULT 7
AD052055
ID AD052055 standard; protein; 275 AA.
XX
AC AD052055;
XX
DT 12-AUG-2004 (first entry)
XX
DE S. pneumoniae strain EF5688 PspA alpha helical domain.
XX
XX Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.
XX
OS Streptococcus pneumoniae.
XX

PN US2004101531-A1.
XX
PD 27-MAY-2004.
XX
PF 15-APR-2003; 2003US-00414532.
XX
PR 16-APR-2002; 2002US-0372710P.
XX
PA (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX
XX WPI; 2004-399655/37.
DR
XX
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
PS Claim 17; SEQ ID NO 1; 94pp; English.
XX
XX The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX
SQ Sequence 275 AA;

Query Match 87.0%; Score 467; DB 8; Length 275;
Best Local Similarity 88.9%; Pred. No. 8.8e-33;
Matches 96; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 1 LEKAGAGLENLSTLDPEGKTQDELKKEAAEALNKKVEALPNOVAEEELSLEDNLK 60
Db 167 LEDAELEKVLATLDPEGKTQDELKKEAAEALNKKVEALPNOVAEEELSLEDNLK 226

Qy 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 227 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 274

RESULT 8
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX
AC ADK52496;
XX
DT 20-MAY-2004 (first entry)
XX
DE alpha helical region PspA molecule from the Rx1 strain.
XX
KW Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
OS Streptococcus pneumoniae.
XX
PN W02004016231-A2.
XX
PD 26-FEB-2004.
XX
PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE;
XX

RESULT 5

DE Ef5668c pneumococcal surface protein A (PspA) central region.

CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX Sequence 212 AA;
 Query Match 98.7%; Score 530; DB 2; Length 212;
 Best Local Similarity 99.1%; Pred. No. 2e-38;
 Matches 107; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 60
 DB 28 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 87
 QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
 DB 88 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 135

RESULT 2

ABW02622
 ID ABW02622 standard; protein; 212 AA.
 AC ABW02622;
 DT 12-FEB-2004 (first entry)
 XX Bg7817c pneumococcal surface protein A (PspA) central region.
 DE
 XX
 DE Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
 KW immunological; gene therapy; immunostimulant.
 KW
 XX Unidentified.
 OS
 XX US6592876-B1.
 PN
 XX 15-JUL-2003.
 PD
 XX 15-SEP-1995; 95US-00529055.
 PF
 XX 20-APR-1993; 93US-00048896.
 PR
 XX 06-JUN-1995; 95US-00465746.
 XX
 PA (UABR-) UAB RES FOUND.
 XX
 XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
 PI
 XX WPI; 2003-862841/80.
 DR
 XX Immunological composition for obtaining expression products used for
 PT detecting the presence of Streptococcus pneumoniae or its strain,
 PT comprises at least two different full length isolated gene encoding
 PT pneumococcal surface protein A.
 XX

Example 6; SEQ ID NO 68; 121pp; English.

XX The present invention relates to an immunological composition comprising
 CC at least 2 different full length isolated genes encoding pneumococcal
 CC surface protein A (PspA) from different groups based on restriction
 CC fragment polymorphism analysis. The invention is useful for obtaining
 CC expression products by recombinant techniques to detect, determine,
 CC isolate or diagnose the presence of Streptococcus pneumoniae or its
 CC strain. The expression product is useful for preparing antigenic,
 CC immunological or vaccine compositions, for eliciting antibodies, an
 CC immunological response (other than or additional to antibodies) or a
 CC protective response (including antibody or other immunological response
 CC by administering compositions to a host). The invention is also useful as
 CC vaccines and in gene therapy. The present sequence is Bg7817c
 CC pneumococcal surface protein A (PspA) central region. This sequence is
 CC used in the exemplification of the invention
 XX

Sequence 212 AA;
 Query Match 98.7%; Score 530; DB 7; Length 212;
 Best Local Similarity 99.1%; Pred. No. 2e-38;

Matches 107; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 60
 DB 28 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 87
 QY 61 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
 DB 88 DAETNHVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE 135

RESULT 3

ABU08487
 ID ABU08487 standard; protein; 8991 AA.
 XX
 AC ABU08487;
 DT 24-JUN-2003 (first entry)
 XX
 DE S. pneumoniae pneumococcal surface protein A (PspA) protein.
 XX
 DE Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
 KW alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
 KW antibacterial.
 KW
 XX Streptococcus pneumoniae.
 OS
 XX
 DE Key Location/Qualifiers
 FT Misc-difference 1..8991
 FT /note= "All Xaa residues within this sequence are
 FT unknown"
 FT
 XX US6500613-B1.
 PN
 XX 31-DEC-2002.
 PD
 XX 16-SEP-1996; 96US-00714741.
 PF
 XX 15-SEP-1995; 95US-00529055.
 PR
 XX (UVAL-) UNIV ALABAMA.
 PA
 XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
 PI Hollingshead S, Tart R, Brooks-Walter A;
 PI
 XX WPI; 2003-361534/34.
 DR
 XX Isolated PspC amino acid sequence used as polymerase chain reaction or
 PT hybridization probe, comprises pneumococcal surface protein having alpha-
 PT helical, proline rich and repeat regions.
 XX

Disclosure; Col 145-188; 186pp; English.

XX The present invention relates to the isolation of Streptococcus
 CC pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
 CC sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-
 CC like protein having alpha-helical, proline rich and repeat regions. The
 CC PspC and PspA proteins may be used in a vaccine to protect against
 CC pneumococcal infections. The polynucleotide sequences encoding PspC and
 CC PspA may be used for the expression of the proteins, and as PCR primers
 CC or hybridisation probes. The present sequence represents S. pneumoniae
 CC PspA protein
 XX

Sequence 8991 AA;

Query Match 98.7%; Score 530; DB 6; Length 8991;
 Best Local Similarity 99.1%; Pred. No. 1.6e-36;
 Matches 107; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 60
 DB 8195 LEKAGAGLENLSTLDPEGKTQDELKDAEAEALNKKVEALPNQVAELEEELSLEDNLK 8254

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 76.7468 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-24

Perfect score: 537

Sequence: 1 LEKAGAGHENLLTLDPEK.....TPKELDAALNELGPDGDEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*

- 1: geneseqp1980s:*
- 2: geneseqp1990s:*
- 3: geneseqp2000s:*
- 4: geneseqp2001s:*
- 5: geneseqp2002s:*
- 6: geneseqp2003as:*
- 7: geneseqp2003bs:*
- 8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	530	98.7	212	2 AAW14588	Aaw14588 Streptococcus
2	530	98.7	212	7 ABW02622	Abw02622 Bg7817c p
3	530	98.7	8991	6 ABU08487	Abu08487 S. pneumo
4	511	95.2	211	7 ABW02621	Abw02621 Bg11703c
5	511	95.2	238	2 AAW14587	Aaw14587 Streptococcus
6	467	87.0	232	7 ABW02624	Abw02624 Ef5668c p
7	467	87.0	275	8 ADO52055	Ado52055 S. pneumo
8	467	87.0	369	8 ADK52496	Adk52496 alpha hel
9	467	87.0	458	2 AAW14592	Aaw14592 Streptococcus
10	467	87.0	458	7 ABW02626	Abw02626 Ef5668 pn
11	467	87.0	653	8 ADK52495	Adk52495 PspA mole
12	467	87.0	653	8 ADO52080	Ado52080 S. pneumo
13	456.5	85.0	233	2 AAW14590	Aaw14590 Streptococcus
14	439	81.8	185	7 ABW02623	Abw02623 Bg7561c p
15	415.5	77.4	184	2 AAW14589	Aaw14589 Streptococcus
16	317	59.0	213	7 ABW02601	Abw02601 Bg8090c p
17	306.5	57.1	459	8 ADO15316	Ado15316 S. pneumon
18	306	57.0	213	2 AAW14567	Aaw14567 Streptococcus
19	306	57.0	416	8 ADK52498	Adk52498 alpha hel
20	306	57.0	526	8 ADK52497	Adk52497 PspA mole
21	306	57.0	744	6 ABU00449	Abu00449 S. pneumo
22	306	57.0	744	8 ADM92054	Adm92054 S. pneumon
23	306	57.0	745	3 AAY81652	Aay81652 Streptococcus
24	305	56.8	641	2 AAW61217	Aaw61217 Streptococcus
25	305	56.8	641	5 ABP54636	Abp54636 S. pneumo

ALIGNMENTS

RESULT 1
AAW14588
ID AAW14588 standard; protein; 212 AA.
XX
AC AAW14588;
XX
DT 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
DE Streptococcus pneumoniae PspA central region.

XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
XX bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Bg7817.

XX
PN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX
(UABR-) UAB RES FOUND.

XX Briles DE, Mcdaniel LS, Swiatlo E, Vother J, Crain MJ;
XX Hollingshead S, Tart R, Brooks-Walter A;
XX WPI; 1997-202002/18.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
XX in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Example 6; Fig 13; 296pp; English.

XX This sequence shows the central portion, including the C-terminus of the
XX alpha-helix region and some of the proline-rich region, of pneumococcal
XX surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
XX Comparison of the N-terminal and central regions (AAW14533-57 and
XX AAW14562-91) of PspA polypeptides from different pneumococcal strains can
XX be used to divide the strains into several families based on sequence
XX homologies. PspA polypeptides, or fragments of them, can be used in
XX vaccines to protect animals against S. pneumoniae infection and hence for
XX the prevention of diseases such as otitis media, meningitis, bacteraemia
XX and pneumonia. The sequence of the 3' half of the PspA alpha-helical
XX region and the immediate 5' tip of the coding sequence are likely to be
XX the critical sequences for predicting PspA cross-reactions and vaccine

26	305	56.8	641	7	ADC45241	Adc45241 S. pneumo
27	300	55.9	197	7	ABW02598	Abw02598 Act122c pn
28	295	54.9	233	7	ABW02606	Abw02606 Ef1019c p
29	288	53.6	233	2	AAW14572	Aaw14572 Streptococcus
30	287.5	53.5	119	2	AAW46291	Aaw46291 Pneumococcus
31	287.5	53.5	215	2	AAW14563	Aaw14563 Streptococcus
32	287.5	53.5	215	7	ABW02597	Abw02597 Atcc6303c
33	282.5	52.6	196	2	AAW14564	Aaw14564 Streptococcus
34	272	50.7	487	8	ADR04321	Adr04321 Streptococcus
35	272	50.7	489	8	ADO52088	Ado52088 Streptococcus
36	272	50.7	524	8	ADO52082	Ado52082 E. coli B
37	272	50.7	627	8	ADO52129	Ado52129 E. coli B
38	262.5	48.9	290	8	ADO52119	Ado52119 pYA3637 b
39	262.5	48.9	298	8	ADO52127	Ado52127 pYA3637 b
40	261	48.6	230	8	ADO52086	Ado52086 S. pneumo
41	261	48.6	230	8	ADR04319	Adr04319 Streptococcus
42	197	36.7	315	2	AAW04375	Aay04375 Streptococcus
43	197	36.7	619	2	AAR63437	Aar63437 Pneumococcus
44	197	36.7	619	2	AAR87598	Aar87598 Pneumococcus
45	197	36.7	619	2	AAR86911	Aar86911 Pneumococcus

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; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 62
; LENGTH: 213
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; NAME/KEY: UNSURE
; LOCATION: (2)
; OTHER INFORMATION: Xaa at position 2 is unknown
US-10-299-636-62
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Query Match          61.0%; Score 325; DB 15; Length 213;
Best Local Similarity 65.7%; Pred. No. 1.9e-16;
Matches 71; Conservative 11; Mismatches 22; Indels 4; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQVSELESELSKLEDLNKK 60
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 59 LAKKQTELEKLLDNLDPGKTQDELKKAEEAELNKKVEALPNKVADLEKESINLEILG 118
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEEE 108
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 119 GADP---ED-DTAALPNKLTAKAEFEKTPKELDAALNELGPDGDEEE 162
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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```
RESULT 14
US-10-702-305A-18
; Sequence 18, Application US/10702305A
; Publication No. US20040213803A1
; GENERAL INFORMATION:
; APPLICANT: Michael C. Chen
; APPLICANT: Chuang-Jiun Chiou
; APPLICANT: Zhongming Li
; APPLICANT: Dong-Sheng Chen
; TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING OR
; TITLE OF INVENTION: PREVENTING PNEUMOCOCCAL INFECTION
; FILE REFERENCE: 12844-002001
; CURRENT APPLICATION NUMBER: US/10/702,305A
; CURRENT FILING DATE: 2003-11-06
; PRIOR APPLICATION NUMBER: US 60/424,497
; PRIOR FILING DATE: 2002-11-07
; NUMBER OF SEQ ID NOS: 26
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 18
; LENGTH: 459
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: polypeptide of pSA-60 PspA insert sequence
US-10-702-305A-18
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Query Match          60.5%; Score 322.5; DB 16; Length 459;
Best Local Similarity 59.1%; Pred. No. 6.8e-16;
Matches 68; Conservative 16; Mismatches 20; Indels 11; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEE-----AELNKKVEALPNQVSELESELSKLE 56
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 345 LEDAELEKVLATLDPEGKTQDELKKAEEADANIEALQNKNVADLENKVAELDKVETRLQ 404
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Qy 57 DNLKDAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDG 104
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 405 SLDKDAENNVEDYVKEGLDKALTDKKVELNNTQKALDTAOKALDTALNELGPDG 459
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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RESULT 15
US-10-674-755-21
; Sequence 21, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
```

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; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 21
; LENGTH: 104
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-21
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Query Match          60.2%; Score 321; DB 15; Length 104;
Best Local Similarity 65.7%; Pred. No. 1.7e-16;
Matches 71; Conservative 11; Mismatches 22; Indels 4; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQVSELESELSKLEDLNKK 60
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 1 LAKKQTELEKLLDNLDPGKTQDELKKAEEAELNKKVEALPNKVADLEKESINLEILG 60
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEEE 108
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 61 GADP---ED-DTAALPNKLTAKAELEKTPKELDAALNELGPDGDEEE 104
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Search completed: November 17, 2005, 20:29:18
Job time : 72.832 secs
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OY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVAELEELSLEDNLK 335
OY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 336 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 383

RESULT 10
US-10-414-532-26
; Sequence 26, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 26
; LENGTH: 653
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-26

Query Match 90.6%; Score 483; DB 16; Length 653;
Best Local Similarity 90.7%; Pred. No. 1.5e-27;
Matches 98; Conservative 5; Mismatches 25; Indels 0; Gaps 0;

OY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
DB 276 LEDAELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVAELEELSLEDNLK 335
OY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 336 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 383

RESULT 11
US-10-674-755-26
; Sequence 26, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 26
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (1)-(108)
; OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
US-10-674-755-26

Query Match 86.5%; Score 461; DB 15; Length 108;
Best Local Similarity 88.0%; Pred. No. 8.2e-27;
Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

OY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
```

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DB 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNVXLEBELSPEDNLK 60
OY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 61 DAETNNVEDYIKGLEEAIATKQAELEETPQEVDAALNDLVPDGEDEE 108

RESULT 12
US-10-299-636-84
; Sequence 84, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 84
; LENGTH: 185
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; FEATURE:
; NAME/KEY: UNSURE
; LOCATION: (45)
; OTHER INFORMATION: Xaa at position 45 is unknown
US-10-299-636-84

Query Match 81.6%; Score 435; DB 15; Length 185;
Best Local Similarity 83.2%; Pred. No. 1.2e-24;
Matches 89; Conservative 7; Mismatches 11; Indels 0; Gaps 0;

OY 2 EKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 61
DB 1 KKQVLENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNVXLEBELSPEDNLK 60
OY 62 AETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
DB 61 AETNNVEDYIKGLEEAIATKQAELEETPQEVDAALNDLVPDGEDEE 107

RESULT 13
US-10-299-636-62
; Sequence 62, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
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Db 60 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106

RESULT 6

US-10-674-755-25
; Sequence 25, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:

; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-25

Query Match 90.6%; Score 483; DB 15; Length 108;
Best Local Similarity 90.7%; Pred. No. 1.9e-28;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKVKVEALPNQVSELEELSLEDNLK 60

Db 1 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKVKVEALQNVAELEELSLEDNLK 60

QY 61 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 61 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 7

US-10-299-636-85
; Sequence 85, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:

; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 85
; LENGTH: 232
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-85

Query Match 90.6%; Score 483; DB 15; Length 232;
Best Local Similarity 90.7%; Pred. No. 4.6e-28;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKVKVEALPNQVSELEELSLEDNLK 60

Db 51 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKVKVEALQNVAELEELSLEDNLK 110

QY 61 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108
Db 111 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 158

RESULT 8

US-10-414-532-1
; Sequence 1, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:

; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 1
; LENGTH: 275
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-1

Query Match 90.6%; Score 483; DB 16; Length 275;
Best Local Similarity 90.7%; Pred. No. 5.5e-28;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKVKVEALPNQVSELEELSLEDNLK 60

Db 167 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKVKVEALQNVAELEELSLEDNLK 226

QY 61 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 108

Db 227 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 274

RESULT 9

US-10-299-636-88
; Sequence 88, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:

; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 88
; LENGTH: 458
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-88

Query Match 90.6%; Score 483; DB 15; Length 458;
Best Local Similarity 90.7%; Pred. No. 9.8e-28;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

```
US-10-299-636-82
; Sequence 82, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 82
; LENGTH: 211
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-82

Query Match 100.0%; Score 533; DB 15; Length 211;
Best Local Similarity 100.0%; Pred. No. 8.4e-32;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 25 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 84
Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 108
Db 85 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 3
US-10-674-755-24
; Sequence 24, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-24

Query Match 95.9%; Score 511; DB 15; Length 108;
Best Local Similarity 96.3%; Pred. No. 1.7e-30;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 1 LEKAGAGLNLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 60
Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 108
Db 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 108

US-10-299-636-83
; Sequence 83, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 83
; LENGTH: 212
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-83

Query Match 94.6%; Score 504; DB 15; Length 212;
Best Local Similarity 95.4%; Pred. No. 1.2e-29;
Matches 103; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 28 LEKAGAGLNLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 87
Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 108
Db 88 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 135

RESULT 5
US-10-674-755-22
; Sequence 22, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 22
; LENGTH: 106
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-22

Query Match 94.2%; Score 502; DB 15; Length 106;
Best Local Similarity 98.1%; Pred. No. 7.5e-30;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEELSLEDNLK 59
Qy 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 108
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 71.832 Seconds
(without alignments)
629.082 Million cell updates/sec

Title: US-10-674-755-23
Perfect score: 533
Sequence: 1 LEKAELENNLLSTLDPGK.....TPKELDAALNELGPDGDEEE 108

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1867879 seqs, 418409474 residues

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Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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9: /cgn2_6/ptodata/1/pubpaa/US09A_PUBCOMB.pep.*
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11: /cgn2_6/ptodata/1/pubpaa/US09C_PUBCOMB.pep.*
12: /cgn2_6/ptodata/1/pubpaa/US09_NEW PUB.pep.*
13: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep.*
14: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep.*
15: /cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.pep.*
16: /cgn2_6/ptodata/1/pubpaa/US10D_PUBCOMB.pep.*
17: /cgn2_6/ptodata/1/pubpaa/US10E_PUBCOMB.pep.*
18: /cgn2_6/ptodata/1/pubpaa/US10_NEW PUB.pep.*
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20: /cgn2_6/ptodata/1/pubpaa/US11_NEW PUB.pep.*
21: /cgn2_6/ptodata/1/pubpaa/US60_NEW PUB.pep.*
22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	533	100.0	108	15	US-10-674-755-23
2	533	100.0	211	15	US-10-299-636-82
3	511	95.9	108	15	US-10-674-755-24
4	504	94.6	212	15	US-10-299-636-83
5	502	94.2	106	15	US-10-674-755-22
6	483	90.6	108	15	US-10-674-755-25
7	483	90.6	232	15	US-10-299-636-85
8	483	90.6	275	16	US-10-414-532-1
9	483	90.6	458	15	US-10-299-636-88
10	483	90.6	653	16	US-10-414-532-26
11	461	86.5	108	15	US-10-674-755-26
12	461	86.5	108	15	US-10-674-755-23
13	461	86.5	108	15	US-10-299-636-82
14	504	94.6	212	15	US-10-299-636-83
15	502	94.2	106	15	US-10-674-755-22
16	483	90.6	108	15	US-10-674-755-25
17	483	90.6	232	15	US-10-299-636-85
18	483	90.6	275	16	US-10-414-532-1
19	483	90.6	458	15	US-10-299-636-88
20	483	90.6	653	16	US-10-414-532-26
21	461	86.5	108	15	US-10-674-755-26

12	435	81.6	185	15	US-10-299-636-84	Sequence 84, Appl
13	325	61.0	213	15	US-10-299-636-62	Sequence 62, Appl
14	322.5	60.5	459	16	US-10-702-305A-18	Sequence 18, Appl
15	321	60.2	104	15	US-10-674-755-21	Sequence 21, Appl
16	319	59.8	104	15	US-10-674-755-20	Sequence 20, Appl
17	314	58.9	744	10	US-09-769-787-184	Sequence 184, Appl
18	314	58.9	744	17	US-10-472-928-32	Sequence 32, Appl
19	313	58.7	197	15	US-10-299-636-59	Sequence 59, Appl
20	313	58.7	641	9	US-09-765-272-160	Sequence 160, Appl
21	313	58.7	641	20	US-11-106-649-160	Sequence 160, Appl
22	298	55.9	102	15	US-10-674-755-18	Sequence 18, Appl
23	285	53.5	233	15	US-10-299-636-67	Sequence 67, Appl
24	283	53.1	487	16	US-10-414-532-34	Sequence 34, Appl
25	283	53.1	487	16	US-10-414-533-21	Sequence 21, Appl
26	283	53.1	524	16	US-10-414-532-28	Sequence 28, Appl
27	279.5	52.4	119	15	US-10-674-755-27	Sequence 27, Appl
28	279.5	52.4	215	15	US-10-299-636-58	Sequence 58, Appl
29	273.5	51.3	290	16	US-10-414-532-65	Sequence 65, Appl
30	272	51.0	230	16	US-10-414-532-32	Sequence 32, Appl
31	272	51.0	230	16	US-10-414-533-19	Sequence 19, Appl
32	238	44.7	80	15	US-10-674-755-19	Sequence 19, Appl
33	211	39.6	354	15	US-10-299-636-105	Sequence 105, Appl
34	211	39.6	588	15	US-10-299-636-96	Sequence 96, Appl
35	211	39.6	619	10	US-09-882-774-1	Sequence 1, Appl
36	211	39.6	619	15	US-10-282-122A-73702	Sequence 73702, A
37	211	39.6	619	16	US-10-414-532-72	Sequence 72, Appl
38	199	37.3	204	15	US-10-299-636-66	Sequence 66, Appl
39	195	36.6	99	15	US-10-674-755-11	Sequence 11, Appl
40	191.5	35.9	100	15	US-10-674-755-12	Sequence 12, Appl
41	190	35.6	198	15	US-10-299-636-76	Sequence 76, Appl
42	184	34.5	141	14	US-10-254-995-2	Sequence 2, Appl
43	184	34.5	589	9	US-09-748-875-14	Sequence 14, Appl
44	184	34.5	589	10	US-09-298-523B-14	Sequence 14, Appl
45	184	34.5	589	15	US-10-299-636-97	Sequence 97, Appl

ALIGNMENTS

RESULT 1
US-10-674-755-23
; Sequence 23, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; PRIOR FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-23

Query Match	100.0%;	Score 533;	DB 15;	Length 108;
Best Local Similarity	100.0%;	Pred. No. 4e-32;		
Matches 108;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;
Qy	1	LEKAELENNLLSTLDPGKTDDELKAEAEALNKKVEALPNQVSELEBELSKLEDNLK	60	
Db	1	LEKAELENNLLSTLDPGKTDDELKAEAEALNKKVEALPNQVSELEBELSKLEDNLK	60	
Qy	61	DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE	108	
Db	61	DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEEE	108	
RESULT 2				

```

; MOLECULE TYPE: peptide
US-08-529-055-73

Query Match      90.6%; Score 483; DB 4; Length 458;
Best Local Similarity 90.7%; Pred. No. 1.9e-34;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

QY      1 LEKAAELENLLSTLDPEGKTDQELDKAAEAELNKKVEALPNQVSELEBELSKLEDNLK 60
DB      276 LEDAELELEKVLATLDPEGKTDQELDKAAEAELNKKVEALQNVAELEBELSKLEDNLK 335

QY      61 DAFTNNVEDYIKGLEEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
DB      336 DAFTNNVEDYIKGLEEEAIATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 14
US-08-710-749-25
; Sequence 25, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 25:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-25

Query Match      86.5%; Score 461; DB 2; Length 108;
Best Local Similarity 88.0%; Pred. No. 2.8e-33;
Matches 95; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

QY      1 LEKAAELENLLSTLDPEGKTDQELDKAAEAELNKKVEALPNQVSELEBELSKLEDNLK 60
DB      1 LEKAAELENLLSTLDPEGKTDQELDKAAEAELNKKVEALPNVPELEBELSPEDNLK 60

QY      61 DAFTNNVEDYIKGLEEEAIATKQAELEKTPKELDAALNELGPDGDEEE 108
DB      61 DAFTNNVEDYIKGLEEEAIATKQAELEETPOEVDAAALNDLVPGGDEEE 108

```

RESULT 15

; CLASSIFICATION: 435

QY	1	LEKAAEALENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEFEELSKELDNLK	60
DB	1	LEKAGAGLGNLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEFEELSKELDNLK	60
QY	61	DAETNNVVDYIKEGLEFEATATQAALEKTPKELDAALNELPGDGE	108
DB	61	DAETHNVDYIKEGLEFEATATQAALEKTPKELDAALNELPGDGE	108

RESULT 8

```

US-08-529-055-68
; Sequence 68, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Thereof, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 68:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 212 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-529-055-68

```

[illegible]

RESULT 9

US-09-147-875A-22
; Sequence 22, Application US/09147875A

```

; Patent No. 6638516
;
; GENERAL INFORMATION:
;
; APPLICANT: BECKER et al.
;
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
;
; FILE REFERENCE: 454312-2471
;
; CURRENT APPLICATION NUMBER: US/09/147,875A
;
; CURRENT FILING DATE: 1999-05-24
;
; NUMBER OF SEQ ID NOS: 28
;
; SOFTWARE: PatentIn Ver. 2.1
;
; SEQ ID NO 22
;
; LENGTH: 106
;
; TYPE: PRT
;
; ORGANISM: Streptococcus pneumoniae
;
; US-09-147-875A-22

```

```

Query Match      94.2%; Score 502; DB 4; Length 106;
Best Local Similarity 98.1%; Pred. No. 7.4e-37;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

QY 1 LEKAAELENLLSTLDPGKTODELDKAAAEALNKKVEALPNQVSELEEEESKLEDNLK 60
   |||
Db 1 LEKAAELENLLSTLDPGKTODELDKAAAEALNKKVEALPNQV-ELSEEESKLEDNLK 59
   |||

QY 61 DAETNNVEDYIKEGLEEAATKQAELEKTPKELDAAALNELGPDGDEEE 108
   |||
Db 60 DAET-NNVEDYIKEGLEEAATKQAELEKTPKELDAAALNELGPDGDEEE 106
   |||

```

RESULT 10

```

US-08-710-749-24
Sequence 24, Application US/08710749
Patent No. 5955089
GENERAL INFORMATION:
APPLICANT: Briles, David E.
APPLICANT: Hollingshead, Susan
APPLICANT: Becker, Robert
TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
PROTEINS
NUMBER OF SEQUENCES: 28
CORRESPONDENCE ADDRESS:
ADDRESSEE: Curtis, Morris & Safford
STREET: 530 Fifth Avenue
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/710,749
FILING DATE: 20-SEP-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2074
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 24:
SEQUENCE CHARACTERISTICS:
LENGTH: 108 amino acids
TYPE: amino acid
STRANDEDNESS: n/a
TOPOLOGY: linear
MOLECULE TYPE: amino acid
US-08-710-749-24

```

Query Match	90.6%;	Score 483;	DB 2;	Length 108;
Best Local Similarity	90.7%;	Pred. No. 3.4e-35;		

```
Query Match          100.0%; Score 533; DB 4; Length 8991;
Best Local Similarity 100.0%; Pred. No. 2.7e-37;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 7981 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 8040

Qy 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108
Db 8041 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 8088

RESULT 5
US-09-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent in Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-24

Query Match          95.9%; Score 511; DB 4; Length 108;
Best Local Similarity 96.3%; Pred. No. 1.2e-37;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 1 LEKAGAGLGNLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVAEELSLEDNLK 60

Qy 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

RESULT 6
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent in Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22
```

```
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22

Query Match          95.1%; Score 507; DB 2; Length 108;
Best Local Similarity 96.3%; Pred. No. 2.8e-37;
Matches 104; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

Qy 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60
Db 1 LEKAGAGLGNLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQVSELEELSLEDNLK 60

Qy 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

RESULT 7
US-08-710-749-23
; Sequence 23, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent in Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-23

Query Match          95.1%; Score 507; DB 2; Length 108;
Best Local Similarity 96.3%; Pred. No. 2.8e-37;
Matches 104; Conservative 1; Mismatches 3; Indels 0; Gaps 0;
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; TELECOMMUNICATION

GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 17, 2005, 18:59:20 ; Search time 20.7935 seconds
(without alignments)
387.723 Million cell updates/sec

Title: US-10-674-755-23

Perfect score: 533

Sequence: 1 LEKAELENLSTLDPEGK.....TPKELDAALNELPGDGDEE 108

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents_AA.*

- 1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep.*
- 2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep.*
- 3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep.*
- 4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep.*
- 5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep.*
- 6: /cgn2_6/ptodata/1/iaa/backfiles1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	533	100.0	108	2	US-08-710-749-26
2	533	100.0	108	4	US-09-147-875A-23
3	533	100.0	211	4	US-08-529-055-67
4	533	100.0	8991	4	US-08-714-741-32
5	511	95.9	108	4	US-09-147-875A-24
6	507	95.1	108	2	US-08-710-749-22
7	507	95.1	108	2	US-08-710-749-23
8	504	94.6	212	4	US-08-529-055-68
9	502	94.2	106	4	US-09-147-875A-22
10	483	90.6	108	2	US-08-710-749-24
11	483	90.6	108	4	US-09-147-875A-25
12	483	90.6	232	4	US-08-529-055-70
13	483	90.6	458	4	US-08-529-055-73
14	461	86.5	108	2	US-08-710-749-25
15	461	86.5	108	4	US-09-147-875A-26
16	435	81.6	185	4	US-08-529-055-69
17	329	61.7	104	2	US-08-710-749-20
18	325	61.0	213	4	US-08-529-055-47
19	321	60.2	104	4	US-09-147-875A-21
20	319	59.8	104	2	US-08-710-749-19
21	319	59.8	104	4	US-09-147-875A-20
22	313	58.7	197	4	US-08-529-055-44
23	313	58.7	641	3	US-08-961-083-160
24	313	58.7	641	4	US-09-536-784-160
25	298	55.9	102	2	US-08-710-749-21
26	298	55.9	102	4	US-09-147-875A-18
27	285	53.5	233	4	US-08-529-055-52

28	279.5	52.4	119	2	US-08-710-749-27	Sequence 27, Appl
29	279.5	52.4	119	4	US-09-147-875A-27	Sequence 27, Appl
30	279.5	52.4	215	4	US-08-529-055-43	Sequence 43, Appl
31	238	44.7	80	2	US-08-710-749-18	Sequence 18, Appl
32	238	44.7	80	4	US-09-147-875A-19	Sequence 19, Appl
33	211	39.6	288	3	US-08-312-949-4	Sequence 4, Appl
34	211	39.6	288	3	US-08-446-201-4	Sequence 4, Appl
35	211	39.6	619	1	US-08-465-746-2	Sequence 2, Appl
36	211	39.6	619	1	US-08-214-164-2	Sequence 2, Appl
37	211	39.6	619	2	US-08-467-852A-3	Sequence 3, Appl
38	211	39.6	619	2	US-08-246-636-2	Sequence 2, Appl
39	211	39.6	619	2	US-08-247-491A-3	Sequence 3, Appl
40	211	39.6	619	2	US-08-319-795-2	Sequence 2, Appl
41	211	39.6	619	2	US-08-468-985-2	Sequence 2, Appl
42	211	39.6	619	3	US-08-312-949-2	Sequence 2, Appl
43	211	39.6	648	1	US-08-072-070-2	Sequence 2, Appl
44	211	39.6	648	1	US-08-469-434-2	Sequence 2, Appl
45	211	39.6	648	1	US-08-214-222-2	Sequence 2, Appl

ALIGNMENTS

RESULT 1
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 26:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match 100.0%; Score 533; DB 2; Length 108;
Best Local Similarity 100.0%; Pred. No. 1.5e-39;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Oy 1 LEKAELENLSTLDPEGKTQDELDKAEAELELNKKVEALPNQVSELEELSLEENLKL 60
Db 1 LEKAELENLSTLDPEGKTQDELDKAEAELELNKKVEALPNQVSELEELSLEENLKL 60

QY	Matches	70;	Conservative	12;	Mismatches	22;	Indels	4;	Gaps	2;
1	LEKAAEALNDLS	LTLD	PEGKTQ	DEL	KEAAEALNKKVEAL	PNQVSELEELS	KLE	LDNLK	60	

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OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP222;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254255; AAF68090.1; -.
FT NON_TER 1 257
FT NON_TER 257
SQ SEQUENCE 257 AA; 28241 MW; 8470B68C949A133D CRC64;

Query Match 69.3%; Score 369.5; DB 2; Length 257;
Best Local Similarity 65.5%; Pred. No. 5.4e-14;
Matches 78; Conservative 13; Mismatches 17; Indels 11; Gaps 2;

Qy 1 LEKAEAELENLLSTLDPGKGTQDELDEKAAE-----AELNKKVEALPNQVSELEELSLE 56
Db 51 LEKAEAELENLLSTLDPGKGTQDELDEKAAEDANIEALQNKVADLENKVAELDKVETRLQ 110
Qy 57 DNLKDAETNNVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDBEE 108
Db 111 SDLKDAEENNVEDYVYKEGLEKALTDKKVELNNTQKALDTAQAALDTALNELGPDGDBEE 169

RESULT 10
Q9LAX6 PRELIMINARY; PRT; 461 AA.
AC Q9LAX6;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-MAR-2003 (TReMBLrel. 23, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC6303;
RX MEDLINE=20448953; PubMed=1092499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
RT in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071820; AAF27715.1; -.
FT NON_TER 461
FT NON_TER 461
SQ SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;

Query Match 66.5%; Score 354.5; DB 2; Length 461;
Best Local Similarity 62.2%; Pred. No. 7e-13;
Matches 74; Conservative 15; Mismatches 19; Indels 11; Gaps 2;

Qy 1 LEKAEAELENLLSTLDPGKGTQDELDEKAAE-----AELNKKVEALPNQVSELEELSLE 56
Db 273 LEDAELEKVLATLDPGKGTQDELDEKAAEDANIEALQNKVADLENKVAELDKVETRLQ 332
Qy 57 DNLKDAETNNVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDBEE 108
Db 333 SDLKDAEENNVEDYVYKEGLEKALTDKKVELNNTQKALDTAQAALDTALNELGPDGDBEE 391

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RESULT 11
Q9LS95 PRELIMINARY; PRT; 256 AA.
AC Q9LS95;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254254; AAF68089.1; -.
FT NON_TER 1 256
FT NON_TER 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match 65.0%; Score 346.5; DB 2; Length 256;
Best Local Similarity 61.3%; Pred. No. 1.1e-12;
Matches 73; Conservative 15; Mismatches 20; Indels 11; Gaps 2;

Qy 1 LEKAEAELENLLSTLDPGKGTQDELDEKAAE-----AELNKKVEALPNQVSELEELSLE 56
Db 52 LEDAELEKVLATLDPGKGTQDELDEKAAEDANIEALQNKVADLENKVAELDKVETRLQ 111
Qy 57 DNLKDAETNNVEDYIKEGLEEAIAATKQAELEKT-----PKELDAALNELGPDGDBEE 108
Db 112 SDLKDAEENNVEDYVYKEGLEKALTDKKVELNNTQKALDTAQAALDTALNELGPDGDBEE 170

RESULT 12
Q9KGS0 PRELIMINARY; PRT; 227 AA.
AC Q9KGS0;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RA Beall B.W.;
RL Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF288751; AAF91495.1; -.

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RN RP SEQUENCE FROM N.A.
RC STRAIN=BG11703;
RX MEDLINE=20448953; PubMed=10992499;
DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of pSPA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071821; AAF27716.1; -.
DR HSP; P58301; 1L8D.
FT NON TER 481
SQ SEQUENCE 481 AA; 53500 MW; EA3C66445EFCE2B CRC64;

Query Match 96.4%; Score 514; DB 2; Length 481;
Best Local Similarity 97.2%; Pred. No. 5.3e-22;
Matches 105; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 60
Db 295 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 354

Qy 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 355 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 402

RESULT 3
Q9L5B4 PRELIMINARY; PRT; 246 AA.
AC Q9L5B4;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-OCT-2003 (Tremblrel. 25, Last annotation update)
DE pSPA (Fragment).
GN Name=pSPA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pSPA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF253408; AAF67356.1; -.
DR HSP; P05412; 1JNM.
FT NON TER 1
FT NON TER 246
SQ SEQUENCE 246 AA; 26972 MW; 2190EED1460D26D9 CRC64;

Query Match 95.7%; Score 510; DB 2; Length 246;
Best Local Similarity 96.3%; Pred. No. 4.6e-22;
Matches 104; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 60
Db 52 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 111

Qy 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 112 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 159
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RESULT 4
Q8KQK2 PRELIMINARY; PRT; 107 AA.
AC Q8KQK2;
DT 01-OCT-2002 (Tremblrel. 22, Created)
DT 01-OCT-2002 (Tremblrel. 22, Last sequence update)
DT 01-OCT-2002 (Tremblrel. 22, Last annotation update)
DE Pneumococcal surface protein A (Fragment).
GN Name=pSPA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=255/00;
RX MEDLINE=22170754; PubMed=12183557;
DOI=10.1128/IAI.70.9.5086-5090.2002;
RA Miyaji E.N., Ferreira D.M., Lopes A.P.Y., Brandileone M.C.C.,
Dias W.O., Leite L.C.C.;
RT "Analysis of serum cross-reactivity and cross-protection elicited by
immunization with DNA vaccines against Streptococcus pneumoniae
expressing pSPA fragments from different clades.";
RL Infect. Immun. 70:5086-5090(2002).
DR EMBL; AY082390; AAL92495.1; -.
FT NON TER 1
FT NON TER 107
SQ SEQUENCE 107 AA; 11897 MW; 47913E25EE47D5CC CRC64;

Query Match 94.7%; Score 505; DB 2; Length 107;
Best Local Similarity 96.3%; Pred. No. 3.8e-22;
Matches 103; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 60
Db 1 LEKAEAELENLLSTLDPEGKTQDELDKAEAELENKKVEALPNQVSELEELSKELDNLK 60

Qy 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 107
Db 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 107

RESULT 5
Q9LAX3 PRELIMINARY; PRT; 480 AA.
AC Q9LAX3;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-OCT-2003 (Tremblrel. 25, Last annotation update)
DE pSPA (Fragment).
GN Name=pSPA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG7561;
RX MEDLINE=20448953; PubMed=10992499;
DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of pSPA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071824; AAF27718.1; -.
DR InterPro; IPR000533; Tropomyosin.
DR PRINTS; P00194; TROPOMYSIN.
FT NON TER 480
SQ SEQUENCE 480 AA; 53043 MW; DA013C9E0190D7A0 CRC64;

Query Match 91.7%; Score 489; DB 2; Length 480;
Best Local Similarity 92.6%; Pred. No. 1.4e-20;
Matches 100; Conservative 4; Mismatches 4; Indels 0; Gaps 0;
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Result No.	Score	Query [†]		DB	ID	Description
		Match	Length			
1	514	96.4	479	2	Q9LAX2	Q9Lax2 streptococc
2	514	96.4	481	2	Q9LAX5	Q9Lax5 streptococc
3	510	95.7	246	2	Q9L5B4	Q9L5B4 streptococc
4	505	94.7	107	2	Q8KQK2	Q8Kqk2 streptococc
5	489	91.7	480	2	Q9LAX3	Q9Lax3 streptococc
6	483	90.6	213	2	Q8GNS7	Q8Gns7 streptococc
7	483	90.6	653	2	Q34097	Q34097 streptococc
8	369.5	69.3	211	2	Q8GNT0	Q8Gnt0 streptococc
9	369.5	69.3	227	2	Q9L594	Q9L594 streptococc
10	354.5	66.5	461	2	Q9LAX6	Q9Lax6 streptococc
11	346.5	65.0	256	2	Q9L595	Q9L595 streptococc
12	343.5	64.4	227	2	Q9KGS0	Q9Kgs0 streptococc
13	331	62.1	242	2	Q9L562	Q9L562 streptococc
14	318	59.7	222	2	Q9L584	Q9L584 streptococc
15	316	59.3	231	2	Q9L579	Q9L579 streptococc
16	316	59.3	241	2	Q9L580	Q9L580 streptococc
17	314	58.9	228	2	Q9L5B8	Q9L5B8 streptococc
18	314	58.9	235	2	Q9L582	Q9L582 streptococc
19	314	58.9	249	2	Q9L5D4	Q9L5d4 streptococc
20	314	58.9	222	2	Q9L583	Q9L583 streptococc
21	314	58.9	360	2	Q8KQK3	Q8Kqk3 streptococc
22	314	58.9	429	2	Q9LAX7	Q9Lax7 streptococc
23	314	58.9	526	2	Q9LAX9	Q9Lax9 streptococc
24	314	58.9	608	2	Q8VG55	Q8Vg55 streptococc
25	314	58.9	744	2	Q97T39	Q97T39 streptococc
26	312	58.5	249	2	Q9L5B7	Q9L5b7 streptococc
27	312	58.5	502	2	Q9LAX8	Q9Lax8 streptococc
28	311	58.3	249	2	Q9L585	Q9L585 streptococc
29	311	58.3	256	2	Q9L590	Q9L590 streptococc
30	304	57.0	209	2	Q9L593	Q9L593 streptococc
31	219	41.1	417	2	Q9LAX3	Q9Lax3 streptococc

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C>Date: 09-Jun-2000 #sequence_revision 09-Jun-2000 #text_change 09-Jul-2004
C/Accession: A59287
R/Weaton, D.S.; Schmitz, J.; Kemp, M.; Kunz, W.
Mol. Biochem. Parasitol. 58, 161-164, 1993
A>Title: Cloning and sequence characterization of a complete myosin heavy chain cDNA from
A/Reference number: A59287; MUID:93211444; PMID:8459827
C/Accession: A59287
A/Status: preliminary; not compared with conceptual translation
A/Molecule type: mRNA
A/Residues: 1-1940 <WES>
A/Cross-references: UNIPROT:Q02456; GB:L01634; PIDN:AAA29905.1
A/Experimental source: strain Brazilian LE
C/Genetics:
A/Gene: MYH
C/Supersfamily: myosin heavy chain; myosin motor domain homology
F:82-752/Domain: myosin motor domain homology <WMO>

Query Match 21.6%; Score 115; DB 2; Length 1940;
Best Local Similarity 29.5%; Pred. No. 12;
Matches 49; Conservative 18; Mismatches 39; Indels 60; Gaps 8;

Qy 1 LEKAEAE---LENLLSTLDPEGKTQDEL-----DK-----EAAEAE-----L 34
Db 947 LQKAEQEKTKDNQRTIQLSEMAQQDEMIGKLNKDKKNLEQNKRKTQEQALQAEEDKYNHL 1006
Qy 35 NKKVEALPNQVSELEELS-----KLEDNLKDAETNNVEDY--IKEGLEEA 78
Db 1007 NKLKAKLESTLDEMBENLAREQKIRGVDKSKRKLKGLK-ATQETVDDLERVRDLDEEQ 1065
Qy 79 IATKQAE-----LEKTPKELDAALNELGPDGDEE 107
Db 1066 LRRKEAIEGSLGKFEDEQGLVAQLQKIKELQTRIQLEEDLEAE 1111

RESULT 10
B75150
chromosome segregation protein (smc1) PAB2109 - Pyrococcus abyssi (strain Orsay)
C/Species: Pyrococcus abyssi
C/Date: 20-Aug-1999 #sequence_revision 20-Aug-1999 #text_change 09-Jul-2004
C/Accession: B75150
R/anonymous, Genoscope
A/Description: Pyrococcus abyssi genome sequence: insights into archaeal chromosome structure
A/Reference number: A75001
A/Accession: B75150
A/Status: preliminary
A/Molecule type: DNA
A/Residues: 1-1177 <KAW>
A/Cross-references: UNIPROT:Q9VIR8; GB:AJ248284; GB:AL096836; NID:95457730; PIDN:CAB4928
A/Experimental source: strain Orsay
C/Genetics:
A/Gene: PAB2109
C/Supersfamily: chromosome segregation protein SMC1

Query Match 21.5%; Score 114.5; DB 2; Length 1177;
Best Local Similarity 30.9%; Pred. No. 7.8;
Matches 34; Conservative 25; Mismatches 38; Indels 13; Gaps 4;

Qy 4 AEAELENLLSTLDPEGKT--QDELKEAAEAE---LNKKVEALPNQVSELEELS-----L 58
Db 387 AREFDFNVVKELENARKSLYENADIKLEAEKELSRITILKAKLPGIREVEKLEK 446

Qy 59 L--KDAETNNVEDYI-----KEGLEEAATKQAELEKTPKELDAALNEL 100
Db 447 LEKKAELSNNVENKISSIQRKRRKVEELENKTSSELQVSVSELSREL 496

RESULT 11
T14156
kinesin-related protein - African clawed frog
C/Species: Xenopus laevis (African clawed frog)
C/Date: 20-Sep-1999 #sequence_revision 20-Sep-1999 #text_change 09-Jul-2004
C/Accession: T14156

R/Wood, K.W.; Sakowicz, R.; Goldstein, L.S.; Cleveland, D.W.
Cell 91, 357-366, 1997
A>Title: CENP-E is a plus end-directed kinetochore motor required for metaphase chromosome
A/Reference number: Z17893; MUID:98028574; PMID:9363944
A/Accession: T14156
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 1-2954 <WOO>
A/Cross-references: UNIPROT:O42263; EMBL:AF027728; NID:g2586070; PIDN:g2586071; PIDN:AAC6
C/Genetics:
A/Gene: XCENP-E
C/Supersfamily: centromere protein E; kinesin motor domain homology

Query Match 21.5%; Score 114.5; DB 2; Length 2954;
Best Local Similarity 29.8%; Pred. No. 20;
Matches 34; Conservative 20; Mismatches 39; Indels 21; Gaps 3;

Qy 2 EKAAEAELENLLSTLDPE---GKTQDELKEAAEAEALNKKVEALPNQVSELEELS-----L 57
Db 1952 EQALNTEHURETLKSKDLALGKMEQERDEAA-----NKVIALTEKMSLEEQINENVT 2005
Qy 58 NLKDAETNNVEDYIK-----EGLEEAATKQAELEKTPKELDAALNEL 100
Db 2006 TLKEGEKEKTFYIQRSPKQSSSQMSQMELESLKTKDLQLEAEKEISEATNEI 2059

RESULT 12
S33068
myosin heavy chain - fluke (Schistosoma mansoni) (fragment)
N/Alternate names: surface antigen, 200K
C/Species: Schistosoma mansoni
C/Date: 22-Nov-1993 #sequence_revision 06-Sep-1996 #text_change 09-Jul-2004
C/Accession: S33068
R/Soisson, L.M.A.; Masterson, C.P.; Tom, T.D.; McNally, M.T.; Lowell, G.H.; Strand, M.
J. Immunol. 149, 3612-3620, 1992
A/Title: Induction of protective immunity in mice using a 62-kDa recombinant fragment of
A/Reference number: A46514; MUID:93056536; PMID:1431131
A/Accession: S33068
A/Molecule type: mRNA
A/Residues: 1-527 <SOI>
A/Cross-references: UNIPROT:Q26589; EMBL:X65591
A/Note: the authors translated the codon CAA for residue 346 as Lys
C/Supersfamily: myosin heavy chain; myosin motor domain homology
C/Keywords: ATP; surface antigen

Query Match 21.4%; Score 114; DB 2; Length 527;
Best Local Similarity 29.5%; Pred. No. 3.6;
Matches 49; Conservative 19; Mismatches 39; Indels 60; Gaps 8;

Qy 1 LEKAEAE---LENLLSTLDPEGKTQDEL-----DK-----EAAEAE-----L 34
Db 244 LQKAEQEKTKDNQRTIQLSEMAQQDEMIGKLNKDKKNLEQNKRKTQEQALQAEEDKYNHL 303
Qy 35 NKKVEALPNQVSELEELS-----KLEDNLKDAETNNVEDY--IKEGLEEA 78
Db 304 NLKAKLESTLDEMBENLAREQKIRGVDKSKRKLKGLK-ATQETVDDLERVRDLDEEQ 362
Qy 79 IATKQAE-----LEKTPKELDAALNELGPDGDEE 107
Db 363 LRRKEAIEGSLGKFEDEQGLVAQLQKIKELQTRIQLEEDLEAE 408

RESULT 13
A47297
myosin heavy chain form B, nonmuscle - African clawed frog
C/Species: Xenopus laevis (African clawed frog)
C/Date: 22-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004
C/Accession: A47297; A55441
R/Bhatia-Dey, N.; Adelstein, R.S.; Dawid, I.B.
Proc. Natl. Acad. Sci. U.S.A. 90, 2856-2859, 1993
A/Title: Cloning of the cDNA encoding a myosin heavy chain B isoform of Xenopus nonmusci
A/Reference number: A47297; MUID:93219383; PMID:8464900
A/Accession: A47297

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RESULT 7
Tl8296
myosin heavy chain - Entamoeba histolytica
C;Species: Entamoeba histolytica
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 09-Jul-2004
C;Accession: Tl8296
R;Guillen, N.
submitted to the EMBL Data Library, February 1997
A;Reference number: Z18865
A;Accession: Tl8296
A;Status: preliminary; translated from GB/EMBL/DDBB
A;Molecule type: DNA
A;Residues: 1-2139 <GUI>
A;Cross-references: UNIPROT:Q07569; EMBL:L03534; NID:g1850912; PID:g1850913; PDI:
C;Genetics:
A;Gene: mhca
C;Superfamily: myosin heavy chain; myosin motor domain homology
F;g1-780/Domain: myosin motor domain homology <MMO>

      Query Match          21.8%; Score 116; DB 2; Length 2139;
      Best Local Similarity 29.7%; Pred. No. 12;
      Matches 38; Conservative 23; Mismatches 39; Indels 28; Gaps 6;

Qy    3 KAAELENLLS-----TLDPGKQTQ----DELDEKAEEALNKKVEALPNQVSEL 48
      |||||:||||: :|||:|||||:|||||:|||||:|||||:|||||:|||||:
Db    2015 KYAEIEELTTEAEADALKAKWKAETKSQKKLDELQTIADYE--TKESFNTEIGKT 2072

Qy    49 EEELSLEDNLDAET--NNVEDYIKEGLEEAIAATQAOLEKTPKELD-----AAL 97
      :|||: :|||: :|||: :|||: :|||: :|||: :|||: :|||: :|||:
Db    2073 QAELKKYQQOVDRDETMSLSLEIKNKG-TDALANKQLDLKVNKQYKLKKQYKRLAA 2131

Qy    98 NELGPDGD 105
      |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db    2132 KSDDDSD 2139

RESULT 8
A59234
slow myosin heavy chain 3 - quail
C;Species: Coturnix coturnix
C;Date: 19-May-2000 #sequence_revision 19-May-2000 #text_change 08-Sep-2000
C;Accession: A59234
R;Nikovits Jr., W.; Wang, G.F.; Feldman, J.L.; Miller, J.B.; Wade, R.; Nelson, H.
J. Biol. Chem. 271, 17047-17056, 1996
A;Title: Isolation and characterization of an avian slow myosin heavy chain gene
A;Reference number: A59234; MUID:96291845; PMID:8663323
A;Accession: A59234
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-1931 <NIK>
A;Cross-references: GB:U53862; NID:g1289513; PID:NAC59912.1; PID:g1289514
C;Superfamily: myosin heavy chain; myosin motor domain homology
F;g1-761/Domain: myosin motor domain homology <MMO>

      Query Match          21.6%; Score 115; DB 2; Length 1931;
      Best Local Similarity 35.2%; Pred. No. 12;
      Matches 38; Conservative 21; Mismatches 35; Indels 14; Gaps 5;

Qy    3 KAAELENLLSTLDPSGTQDELDEKAEEALNKKVEALPNQVSELEELSLEDNI--K 60
      |||: :|||: :|||: :|||: :|||: :|||: :|||: :|||: :|||:
Db    1021 KLEQQADDLESSLQQEKIR--MDLERARRKLEGDUKLQAESVMDLNKQQLERLKKK 1078

Qy    61 DAFTNNVEDYIKEGLEEAIAATQAOLEKTPKELDAAINELPGPDDEE 108
      :|||: :|||: :|||: :|||: :|||: :|||: :|||: :|||: :|||:
Db    1079 DPELNTLNARIED-EQAIA---AQQLKKELQARIEL-----EEE 1116

RESULT 9
A59287
myosin heavy chain - fluke (Schistosoma mansoni) (strain Brazilian LE)
C;Species: Schistosoma mansoni

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C;Species: Pyrococcus horikoshii
C;Date: 14-Aug-1998 #sequence_revision 14-Aug-1998 #text_change 09-Jul-2004
C;Accession: D71453
R;Kawarabayashi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamoto, S.; Sekin, M.; Ohfuku, Y.; Funahashi, T.; Tanaka, T.; Kudoh, Y.; Yamazaki, J.; Kushida, N.; Oguchi, DNA Res. 5, 55-76, 1998
A;Title: Complete sequence and gene organization of the genome of a hyper-thermophilic A;Reference number: A71000; MUID:98344137; PMID:9679194
A;Accession: D71453
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
A;Molecule type: DNA
A;Residues: 1-279 <KAW>
A;Cross-references: UNIPROT:O58021; GB:AP000001; NID:G3236128; PIDN:BA29355.1; PID:G3236128
A;Experimental source: strain OT3
A;Note: this accession replaces an interim accession for a sequence replaced by GenBank C;Genetics:
A;Gene: PH0283

Query Match 23.1%; Score 123; DB 2; Length 279;
Best Local Similarity 32.8%; Pred. No. 0.52;
Matches 39; Conservative 22; Mismatches 40; Indels 18; Gaps 4;

Qy 1 LEKAELENLSTLDPGKTQDELKKEAAEAELN-----KKVEALPNQVSELEEL 52
Db 164 LEKAKGEIELKERITLEKEKELEKESVKVMEYAKAKVBELEKLEKEYEKS 223

Qy 53 SKLEDNLKDAETNNVE-DYIKEGLEEAIAATQAELE-----KTPKELDAALNELGPDG 104
Db 224 REIEGRKQVVEKIRELEEBEKGLEKINVLNRIENLKNIGIRSAKE---ALERLLEEG 279

RESULT 5
A40997
myosin heavy chain, striated adductor muscle - scallop (Aequipecten irradians)
N;Contains: myosin ATPase (EC 3.6.4.1)
C;Species: Aequipecten irradians
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 09-Jul-2004
C;Accession: A40997; S13557
R;Nyitray, L.; Goodwin, E.B.; Szent-Gyorgyi, A.G.
J. Biol. Chem. 266, 18469-18476, 1991
A;Title: Complete primary structure of a scallop striated muscle myosin heavy chain. Seq
A;Reference number: A40997; MUID:92011595; PMID:1917970
A;Accession: A40997
A;Molecule type: mRNA
A;Residues: 1-1938 <NYI>
A;Cross-references: UNIPROT:P24733; GB:X55714; NID:G5611; PIDN:CAA39247.1; PID:G5612
C;Superfamily: myosin heavy chain; myosin motor domain homology
C;Keywords: actin binding; ATP; coiled coil; hydrolase; muscle contraction; nucleotide b
F;86-763/Domain: myosin motor domain homology <MMOT>
F;176-183/Region: nucleotide-binding motif A (P-loop)
F;547-586/Region: actin binding #status predicted
F;653-675/Region: actin binding #status predicted
F;836-1938/Domain: coiled coil #status predicted <COI>
F;836-1276/Region: S2
F;1277-1938/Region: light meromyosin
F;182/Binding site: ATP (Lys) #status predicted
F;693,703/Active site: Cys #status predicted

Query Match 22.6%; Score 120.5; DB 1; Length 1938;
Best Local Similarity 31.9%; Pred. No. 5.6;
Matches 53; Conservative 15; Mismatches 35; Indels 63; Gaps 9;

Qy 1 LEKAE---AELENLSTLDPGKTQDE---LDKE-AAEAELNKKV-----EAL 41
Db 958 LQAEQDKAHKDNQISTLQGEISQDEHIGKLNKEKKALEANKKTSLSQAEEDKCNHL 1017

Qy 42 PNQVSELEBEELSLEDNLK-----DAE-----TNNVEDY---IKEGLEEAI 79
Db 1018 NKLKAKLEQALDELDNLEREKVGRGDEKAKRVEQDLKSTQENVEDLRSVRELEENY 1077

Qy 80 ATKQAE-----LEKTPKELDAALNELGPDGDEE 108
Db 1078 RRKEAEISSLNKLEDEQNVLVSQQRKIKELQARIEL-----EEE 1118

C;Cross-references: UNIPROT:Q54972; UNIPROT:Q8DRI0; GB:AE007317; PIDN:AAK98925.1; PID:gl
C;Genetics:
A;Gene: pspA

Query Match 39.6%; Score 211; DB 2; Length 619;
Best Local Similarity 46.8%; Pred. No. 4.4e-06;
Matches 52; Conservative 17; Mismatches 24; Indels 18; Gaps 3;

Qy 6 AELENLSTLDPGKTQDELKKE-----AAEAELNKKVEALPNQVSELE 49
Db 210 AELENQVHRLQELKEIDSESEDYAKEGFRAPLQSKLDKAKKLS-KLEELSDKIDELD 268

Qy 50 EELSLEDNLKDA-ETNNVEDYIKEGLEEAIAATQAELEKTPKELDAALNE 99
Db 269 AEIAKLEDQLKAAEENNNVEDYFKEGLEKTTIAAKKAELEKTEADLKKAVNE 319

RESULT 3
A41971
surface protein pspA precursor - Streptococcus pneumoniae
N;Alternate names: pneumococcal surface protein A
C;Species: Streptococcus pneumoniae
C;Date: 04-Mar-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004
C;Accession: A41971; A60282; A33134
R;Yother, J.; Briles, D.E.
J. Bacteriol. 174, 601-609, 1992
A;Title: Structural properties and evolutionary relationships of PspA, a surface protein
A;Reference number: A41971; MUID:92105030; PMID:1729249
A;Accession: A41971
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-619 <YOT>
A;Cross-references: UNIPROT:Q54972; UNIPROT:Q8DRI0; GB:M74122; NID:G153840; PIDN:AAA2701
A;Note: sequence extracted from NCBI backbone (NCBIN:75635, NCBI:P:75636)
R;Talkington, D.F.; Crimmins, D.L.; Voellinger, D.C.; Yother, J.; Briles, D.E.
Infect. Immun. 59, 1285-1289, 1991
A;Title: A 43-kilodalton pneumococcal surface protein, PspA: isolation, protective abili
A;Reference number: A60282; MUID:91169598; PMID:2004810
A;Accession: A60282
A;Molecule type: Protein
A;Residues: 32-76 <TAL>
A;Experimental source: strain JY2008
C;Genetics:
A;Gene: pspA
F;1-31/Domain: signal sequence #status predicted <SIG>
F;32-619/Product: surface protein pspA #status predicted <MAT>
F;411-430/Domain: cpl repeat homology <CP01>
F;431-450/Domain: cpl repeat homology <CP02>
F;451-470/Domain: cpl repeat homology <CP03>
F;471-490/Domain: cpl repeat homology <CP04>
F;491-510/Domain: cpl repeat homology <CP05>
F;511-530/Domain: cpl repeat homology <CP06>
F;531-550/Domain: cpl repeat homology <CP07>
F;551-570/Domain: cpl repeat homology <CP08>
F;571-591/Domain: cpl repeat homology <CP09>
F;592-611/Domain: cpl repeat homology <CP10>

Query Match 39.6%; Score 211; DB 2; Length 619;
Best Local Similarity 46.8%; Pred. No. 4.4e-06;
Matches 52; Conservative 17; Mismatches 24; Indels 18; Gaps 3;

Qy 6 AELENLSTLDPGKTQDELKKE-----AAEAELNKKVEALPNQVSELE 49
Db 210 AELENQVHRLQELKEIDSESEDYAKEGFRAPLQSKLDKAKKLS-KLEELSDKIDELD 268

Qy 50 EELSLEDNLKDA-ETNNVEDYIKEGLEEAIAATQAELEKTPKELDAALNE 99
Db 269 AEIAKLEDQLKAAEENNNVEDYFKEGLEKTTIAAKKAELEKTEADLKKAVNE 319

RESULT 4
D71453
hypothetical protein PH0283 - Pyrococcus horikoshii

Result No.	Score	Query		Length	DB	ID	Description
		Match	%				
1	314	58.9	744	2	F95013		pneumococcal surface
2	211	39.6	619	2	A97887		surface protein ps
3	211	39.6	619	2	A41971		surface protein ps
4	123	23.1	279	2	D71453		hypothetical prote
5	120.5	22.6	1938	1	A40997		myosin heavy chain
6	116	21.8	1961	1	A61231		myosin heavy chain
7	116	21.8	2139	2	T18296		myosin heavy chain
8	115	21.6	1931	2	A59234		slow myosin heavy
9	115	21.6	1940	2	A59287		myosin heavy chain
10	114.5	21.5	1177	2	B75150		chromosome segrega
11	114.5	21.5	2954	2	T14156		kinesin-related pro
12	114	21.4	527	2	S33068		myosin heavy chain
13	114	21.4	1932	2	A47297		myosin heavy chain
14	113.5	21.3	1964	2	A59282		nonmuscle myosin I
15	112.5	21.1	1937	2	I38055		myosin heavy chain
16	112	21.0	1170	2	A72287		hypothetical prote
17	111.5	20.9	1959	1	A33977		myosin heavy chain
18	111	20.8	281	2	F75216		hypothetical prote
19	111	20.8	779	2	C69605		hypothetical prote
20	110.5	20.7	339	2	E71169		hypothetical prote
21	110	20.6	388	2	A46173		Mrp4 protein - Str
22	109	20.5	372	2	S23326		gene ML2.2 protein
23	109	20.5	501	2	A38650		myosin heavy chain
24	109	20.5	1976	2	A59252		myosin heavy chain
25	108.5	20.4	1164	2	T24806		hypothetical prote
26	108	20.3	233	2	F70531		bbk2.11 protein pr
27	108	20.3	484	2	B33501		myosin heavy chain
28	108	20.3	1006	2	C70445		ATPase subunit of
29	108	20.3	1269	2	F84730		probable myosin he


```
Db      336 DAETNNVEDYIKGLEEAIAATKAALEKTKQKELDAALNELGPDGDEEE 383
RESULT 13
AAW14590
ID AAW14590 standard; protein; 233 AA.
XX
AC AAW14590;
XX
DT 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
DE Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Ef5668.
XX
PN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
DR WPI; 1997-202002/18.
XX
PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
PS Example 6; Fig 13; 296pp; English.
XX
CC This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see
CC also AAW14592). Comparison of the N-terminal and central regions
CC (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains
CC can be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ Sequence 233 AA;
Query Match 88.6%; Score 472.5; DB 2; Length 233;
Best Local Similarity 89.9%; Pred. No. 1.1e-30;
Matches 98; Conservative 5; Mismatches 5; Indels 1; Gaps 1;
Qy 1 LEKAAELENLLSTLDP-EGKTDQELDKAAEAELNKKVEALPNQVSELEELSKLENDL 59
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Db 51 LEDAELELEKVLATLDPPEGKTDQELDKAAEAELNKKVEALQNVQVALELEELSKLENDL 110
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Qy 60 KDAETNNVEDYIKGLEEAIAATKAALEKTKPKELDAALNELGPDGDEEE 108
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Db 111 KDAETNNVEDYIKGLEEAIAATKAALEKTKQKELDAALNELGPDGDEEE 159
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
RESULT 14
ABW02623
ID ABW02623 standard; protein; 185 AA.
XX
AC ABW02623;
XX
DT 17-OCT-2003 (revised)
XX
DB 336 DAETNNVEDYIKGLEEAIAATKAALEKTKQKELDAALNELGPDGDEEE 383
XX
DE Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
FH Key Location/Qualifiers
FT Misc-difference 45 /label= Unknown
XX
PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
XX
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX
DR WPI; 2003-862841/80.
XX
PT Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
PS Example 6; SEQ ID NO 69; 121pp; English.
XX
CC The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7561c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 185 AA;
Query Match 81.6%; Score 435; DB 7; Length 185;
Best Local Similarity 83.2%; Pred. No. 9.6e-28;
Matches 89; Conservative 7; Mismatches 11; Indels 0; Gaps 0;
Qy 2 EKAAEAELENLLSTLDPGKTDQELDKAAEAELNKKVEALPNQVSELEELSKLENDLKD 61
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Db 1 KKQKVNLENLLSTLDPGKTDQELDKAAEAELNKKVEALPNPVXLELEELSPEDNLKD 60
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Qy 62 AETNNVEDYIKGLEEAIAATKAALEKTKPKELDAALNELGPDGDEEE 108
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
Db 61 AETNNVEDYIKGLEEAIAATKAALEKTFQEVDAALNDLVPDGGDEEE 107
| | | | | : | | | | | : | | | | | : | | | | | : | | | | | : | | | | |
RESULT 15
AAW14589
ID AAW14589 standard; protein; 184 AA.
XX
XX AAW14589;
XX
DT 17-OCT-2003 (revised)
```


QY
QY

DR WPI; 2004-192068/18.
XX Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX Claim 17; SEQ ID NO 2; 41pp; English.
XX
CC The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface protein A
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents the alpha
CC helical region PspA molecule from the Rx1 strain of Streptococcus
CC pneumoniae.
XX
SQ Sequence 369 AA;
Query Match 90.6%; Score 483; DB 8; Length 369;
Best Local Similarity 90.7%; Pred. No. 2.6e-31;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;
QY 1 LEKAAELENLSTLDPSGKTQDELDEKAAAEALNKVEALPNQVSEEEESKLEDNLK 60
Db 245 LEDAELEKVLATLDPSGKTQDELDEKAAAEALNKVEALQNVAELEEEESKLEDNLK 304
QY 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 108
Db 305 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 352
RESULT 9
AAW14592
ID AAW14592 standard; protein; 458 AA.
AC AAW14592;
XX
XX 17-OCT-2003 (revised)
DT 27-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA surface protein.
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX Streptococcus pneumoniae; strain Ef5668.
OS
XX WO9709994-A1.
PN
XX 20-MAR-1997.
PD
XX 16-SEP-1996; 96WO-US014819.
PF
XX 15-SEP-1995; 95US-00529055.
PR
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
DR N-PSDB; AAT61724.
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Disclosure; Fig 13; 296pp; English.
XX
XX This sequence comprises the pneumococcal surface protein A (pspA) of
CC Streptococcus pneumoniae strain Ef5668. The sequence was deduced from the

CC pspA gene (AAT61724). PspA polypeptides, or fragments of them, can be
CC used in vaccines to protect animals against S. pneumoniae infection and
CC hence for the prevention of diseases such as otitis media, meningitis,
CC bacteraemia and pneumonia. (Updated on 17-OCT-2003 to standardise OS
CC field)
XX
SQ Sequence 458 AA;
Query Match 90.6%; Score 483; DB 2; Length 458;
Best Local Similarity 90.7%; Pred. No. 3.3e-31;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;
QY 1 LEKAAELENLSTLDPSGKTQDELDEKAAAEALNKVEALPNQVSEEEESKLEDNLK 60
Db 276 LEDAELEKVLATLDPSGKTQDELDEKAAAEALNKVEALQNVAELEEEESKLEDNLK 335
QY 61 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 108
Db 336 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 383
RESULT 10
ABW02626
ID ABW02626 standard; protein; 458 AA.
XX
XX ABW02626;
AC
XX 12-FEB-2004 (first entry)
DT
XX Ef5668 pneumococcal surface protein A (PspA).
DE
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
KW
XX Unidentified.
OS
XX
XX Key Location/Qualifiers
FH Misc-difference 458
FT /note= "Encoded by GC"
TT
XX US6592876-B1.
FN
XX 15-JUL-2003.
PD
XX 15-SEP-1995; 95US-00529055.
PF
XX 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI
XX WPI; 2003-862841/80.
DR N-PSDB; AAD64535.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 73; 121pp; English.
PS
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (pspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response

XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
PN US592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
XX WPI; 2003-862841/80.
DR
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
PS Example 6; SEQ ID NO 70; 121pp; English.
XX
CC The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef5668c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 232 AA;

Query Match 90.6%; Score 483; DB 7; Length 232;
Best Local Similarity 90.7%; Pred. No. 1.5e-31;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

Qy 1 LEKAELENLLSTLDPEGKTQDELKAEAEAELENKKVEALPNQVSELSKLEDNLK 60
Db 51 LEDAELEKVLATLDPEGKTQDELKAEAEAELENKKVEALQNVAELELSKLEDNLK 110

Qy 61 DAETNNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 108
Db 111 DAETNNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 158

RESULT 7
AD052055
ID AD052055 standard; protein; 275 AA.
XX
AC AD052055;
XX
XX 12-AUG-2004 (first entry)
DT
XX S. pneumoniae strain EF5688 PspA alpha helical domain.
DE
XX Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PspA.
XX
OS Streptococcus pneumoniae.
XX

PN US2004101531-A1.
XX
PD 27-MAY-2004.
XX
PF 15-APR-2003; 2003US-00414532.
XX
PR 16-APR-2002; 2002US-0372710P.
XX
PA (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
PI Curtiss R, Kang HY;
XX WPI; 2004-399655/37.
DR
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
PS Claim 17; SEQ ID NO 1; 94pp; English.
XX
CC The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PspA) alpha
CC helical domain. This sequence is used in the invention.
XX
SQ Sequence 275 AA;

Query Match 90.6%; Score 483; DB 8; Length 275;
Best Local Similarity 90.7%; Pred. No. 1.8e-31;
Matches 98; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

Qy 1 LEKAELENLLSTLDPEGKTQDELKAEAEAELENKKVEALPNQVSELSKLEDNLK 60
Db 167 LEDAELEKVLATLDPEGKTQDELKAEAEAELENKKVEALQNVAELELSKLEDNLK 226

Qy 61 DAETNNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 108
Db 227 DAETNNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 274

RESULT 8
ADK52496
ID ADK52496 standard; protein; 369 AA.
XX
AC ADK52496;
XX
DT 20-MAY-2004 (first entry)
XX
XX alpha helical region PspA molecule from the Rx1 strain.
DE
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PspA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
OS Streptococcus pneumoniae.
XX
PN WO2004016231-A2.
XX
PD 26-FEB-2004.
XX
PF 17-FEB-2003; 2003WO-US008199.
XX
PR 15-MAR-2002; 2002US-0365351P.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE;
XX

QY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
AAW14588
|||||
Db 8041 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 8088
|||||

RESULT 4

AAW14588
ID AAW14588 standard; protein; 212 AA.

AC AAW14588;

XX 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)

XX Streptococcus pneumoniae PspA central region.

XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.

XX Streptococcus pneumoniae; strain Bg7817.

OS WO9709994-A1.

PN 20-MAR-1997.

XX 16-SEP-1996; 96WO-US014819.

PR 15-SEP-1995; 95US-00529055.

XX (UABR-) UAB RES FOUND.

XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;

XX WPI; 1997-202002/18.

XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.

XX Example 6; Fig 13; 296pp; English.

XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX Sequence 212 AA;

Query Match 94.6%; Score 504; DB 2; Length 212;
Best Local Similarity 95.4%; Pred. No. 2.7e-33;
Matches 103; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 LEKAAELENLLSTLDPGKQTQDELKAAEALNKKVEALPNQVSELEELSLEDNLK 60
|||||
Db 28 LEKAGAGLGNLLSTLDPGKQTQDELKAAEALNKKVEALPNQVSELEELSLEDNLK 87
|||||

QY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
|||||

Db 88 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 135
|||||

RESULT 5

ABW02622

ID ABW02622 standard; protein; 212 AA.

XX ABW02622;
AC 12-FEB-2004 (first entry)
DT Bg7817c pneumococcal surface protein A (PspA) central region.
DE Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX Unidentified.

OS US6592876-B1.

PN 15-JUL-2003.

PD 15-SEP-1995; 95US-00529055.

XX 20-APR-1993; 93US-00048896.

PR 06-JUN-1995; 95US-00465746.

XX (UABR-) UAB RES FOUND.

XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;

PI WPI; 2003-862841/80.

XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.

XX Example 6; SEQ ID NO 68; 121pp; English.

XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7817c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention

XX Sequence 212 AA;

Query Match 94.6%; Score 504; DB 7; Length 212;
Best Local Similarity 95.4%; Pred. No. 2.7e-33;
Matches 103; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 LEKAAELENLLSTLDPGKQTQDELKAAEALNKKVEALPNQVSELEELSLEDNLK 60
|||||
Db 28 LEKAGAGLGNLLSTLDPGKQTQDELKAAEALNKKVEALPNQVSELEELSLEDNLK 87
|||||

QY 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
|||||

Db 88 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 135
|||||

RESULT 6

ABW02624

ID ABW02624 standard; protein; 232 AA.

XX AC ABW02624;

XX 12-FEB-2004 (first entry)

DE Ef5668c pneumococcal surface protein A (PspA) central region.

CC vaccines and in gene therapy. The present sequence is Bg11703c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 211 AA;

Query Match 100.0%; Score 533; DB 7; Length 211;
Best Local Similarity 100.0%; Pred. No. 1.2e-35;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 60
Db 25 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 84

Qy 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 85 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 2
AAW14587
ID AAW14587 standard; protein; 238 AA.
XX
AC AAW14587;
XX
XX 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA central region.
DE
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Bg11703.
XX
XX WO9709994-A1.
PN
XX 20-MAR-1997.
PD
XX 16-SEP-1996; 96WO-US014819.
PF
XX 15-SEP-1995; 95US-00529055.
PR
XX (UABR-) UAB RES FOUND.
XX
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
PI
XX WPI; 1997-202002/18.
DR
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
PT
XX Example 6; Fig 13; 296pp; English.
XX

This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg11703.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX
SQ Sequence 238 AA;
Query Match 100.0%; Score 533; DB 2; Length 238;
Best Local Similarity 100.0%; Pred. No. 1.3e-35;

Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 60
Db 25 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 84

Qy 61 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 108
Db 85 DAETNNVEDYIKGLEEAIATKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 3
ABU08487
ID ABU08487 standard; protein; 8991 AA.
XX
AC ABU08487;
XX
DT 24-JUN-2003 (first entry)
XX
XX S. pneumoniae pneumococcal surface protein A (PspA) protein.
DE
XX Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
KW alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
KW antibacterial.
XX
XX Streptococcus pneumoniae.
OS
XX
XX Key Location/Qualifiers
FH Misc-difference 1..8991
FT /note= "All Xaa residues within this sequence are
FT unknown"
XX
XX US6500613-B1.
PN
XX 31-DEC-2002.
PD
XX 16-SEP-1996; 96US-00714741.
PF
XX 15-SEP-1995; 95US-00529055.
PR
XX (UYAL-) UNIV ALABAMA.
PA
XX Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
PI
XX WPI; 2003-361534/34.
DR
XX Isolated PspC amino acid sequence used as polymerase chain reaction or
PT hybridization probe, comprises pneumococcal surface protein having alpha-
PT helical, proline rich and repeat regions.
XX
XX Disclosure; Col 145-188; 186pp; English.
XX
XX The present invention relates to the isolation of Streptococcus
CC pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
CC sequence encoding it. PspC is a pneumococcal surface protein A (PspA) -
CC like protein having alpha-helical, proline rich and repeat regions. The
CC PspC and PspA proteins may be used in a vaccine to protect against
CC pneumococcal infections. The polynucleotide sequences encoding PspC and
CC PspA may be used for the expression of the proteins, and as PCR primers
CC or hybridisation probes. The present sequence represents S. pneumoniae
CC PspA protein
XX
SQ Sequence 8991 AA;

Query Match 100.0%; Score 533; DB 6; Length 8991;
Best Local Similarity 100.0%; Pred. No. 7.9e-34;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 60
Db 7981 LEKAAELENLSTLDPEGKTQDELKAAAEALNKVKVEALPNQVSELEBELSKLEDNLK 8040

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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 76.7468 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-23
Perfect score: 533
Sequence: 1 LEKAELENLSTLDEPK.....TPKELDAALNELGPDGDEEE 108

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04.*
1: geneseqp1980s.*
2: geneseqp1990s.*
3: geneseqp2000s.*
4: geneseqp2001s.*
5: geneseqp2002s.*
6: geneseqp2003as.*
7: geneseqp2003bs.*
8: geneseqp2004s.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	533	100.0	211	7	ABW02621 Bg11703c
2	533	100.0	238	2	AAW14587 Streptoco
3	533	100.0	8991	6	ABU08487 S. pneumo
4	504	94.6	212	2	AAW14588 Streptoco
5	504	94.6	212	7	ABW02622
6	483	90.6	232	7	ABW02624 Ef5668c p
7	483	90.6	275	8	ADO52055 S. pneumo
8	483	90.6	369	8	ADK52496 alpha hel
9	483	90.6	458	2	AAW14592 Streptoco
10	483	90.6	458	7	ABW02626
11	483	90.6	653	8	ADK52495 PspA mole
12	483	90.6	653	8	ADO52080
13	472.5	88.6	233	2	AAW14590
14	435	81.6	185	7	ABW02623 Bg7561c p
15	411.5	77.2	184	2	AAW14589
16	325	61.0	213	7	ABW02601 Bg8090c p
17	322.5	60.5	459	8	ADO15316
18	314	58.9	213	2	AAW14567 Streptoco
19	314	58.9	416	8	ADK52498 alpha hel
20	314	58.9	526	8	ADK52497 PspA mole
21	314	58.9	744	6	ABU00449 S. pneumo
22	314	58.9	744	8	ADM92054
23	314	58.9	745	3	AAW14652 Streptoco
24	313	58.7	197	7	ABW02598 Ac122c pn
25	313	58.7	641	2	AAW61217 Streptoco

ALIGNMENTS

RESULT 1

ABW02621	26	313	58.7	641	5	ABP54636	Abp54636 S. pneumo
ID	ABW02621	standard;	protein;	211	AA.		
XX	AC	ABW02621;					
XX	XX						
DT	12-FEB-2004	(first entry)					
XX	DE	Bg11703c pneumococcal surface protein A (PspA) central region.					
XX	KW	Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;					
KW	XX	immunological; gene therapy; immunostimulant.					
XX	OS	Unidentified.					
XX	XX						
PN	US6592876-B1.						
XX	XX						
PD	15-JUL-2003.						
XX	XX						
PF	15-SEP-1995;	95US-00529055.					
XX	XX						
PR	20-APR-1993;	93US-00048896.					
PR	06-JUN-1995;	95US-00465746.					
XX	XX	(UABR-) UAB RES FOUND.					
XX	XX	Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;					
XX	XX	WPI; 2003-862841/80.					
XX	XX	Immunological composition for obtaining expression products used for					
XX	XX	detecting the presence of Streptococcus pneumoniae or its strain,					
XX	XX	comprises at least two different full length isolated gene encoding					
XX	XX	pneumococcal surface protein A.					
XX	XX	Example 6; SEQ ID NO 67; 121pp; English.					
XX	XX	The present invention relates to an immunological composition comprising					
XX	XX	at least 2 different full length isolated genes encoding pneumococcal					
XX	XX	surface protein A (pspAs) from different groups based on restriction					
XX	XX	fragment polymorphism analysis. The invention is useful for obtaining					
XX	XX	expression products by recombinant techniques to detect, determine,					
XX	XX	isolate or diagnose the presence of Streptococcus pneumoniae or its					
XX	XX	strain. The expression product is useful for preparing antigenic,					
XX	XX	immunological or vaccine compositions, for eliciting antibodies, an					
XX	XX	immunological response (other than or additional to antibodies) or a					
XX	XX	protective response (including antibody or other immunological response					
XX	XX	by administering compositions to a host). The invention is also useful as					

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; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 62
; LENGTH: 213
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
; NAME/KEY: UNSURE
; LOCATION: (2)
; OTHER INFORMATION: Xaa at position 2 is unknown
US-10-299-636-62

Query Match          60.2%; Score 315; DB 15; Length 213;
Best Local Similarity 64.5%; Pred. No. 4.2e-17;
Matches 69; Conservative 11; Mismatches 23; Indels 4; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEEELSKLEDNLIK 59
Db | : ||| || ||||| ||||| ||||| || : ||| : ||| : ||| |||
59 LAKQTELEKLLDNLDPGKTQDELDKAAAEALDKADELKNKVADLEKEISNLEILIG 118
QY 60 DAETNVEDYIKGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 106
Db | : : ||| : ||| ||||| ||||| ||||| ||||| ||||| |||||
119 GADPEDD---TAAALPNKLATKKAEEFEKTPKELDAALNELGPDGDEEE 162

RESULT 14
US-10-674-755-21
; Sequence 21, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 21
; LENGTH: 104
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-21

Query Match          59.5%; Score 311; DB 15; Length 104;
Best Local Similarity 64.5%; Pred. No. 3.7e-17;
Matches 69; Conservative 11; Mismatches 23; Indels 4; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEEELSKLEDNLIK 59
Db | : ||| || ||||| ||||| ||||| ||||| || : ||| : ||| : ||| |||
1 LAKQTELEKLLDNLDPGKTQDELDKAAAEALDKADELKNKVADLEKEISNLEILIG 60
QY 60 DAETNVEDYIKGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 106
Db | : : ||| : ||| ||||| ||||| ||||| ||||| ||||| |||||
61 GADPEDD---TAAALPNKLATKKAEEFEKTPKELDAALNELGPDGDEEE 104

RESULT 15
US-10-674-755-20
; Sequence 20, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
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; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 20
; LENGTH: 104
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-20

Query Match          59.1%; Score 309; DB 15; Length 104;
Best Local Similarity 63.6%; Pred. No. 5.4e-17;
Matches 68; Conservative 13; Mismatches 22; Indels 4; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEEELSKLEDNLIK 59
Db | : ||| || ||||| ||||| ||||| ||||| || : ||| : ||| : ||| |||
1 LAKQTELEKLLDNLDPGKTQDELDKAAAEALDKADELKNKVADLEKEISNLEILIG 60
QY 60 DAETNVEDYIKGLEEAATKQAELEKTPKELDAALNELGPDGDEEE 106
Db | : : ||| : ||| ||||| ||||| ||||| ||||| ||||| |||||
61 GADSEDD---TAAALPNKLATKKAEEFEKTPKELDAALNELGPDGDEEE 104

Search completed: November 17, 2005, 20:29:17
Job time : 70.5017 secs
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Qy 1 LEKAAELENLLSTLDPGKQTQDELDKAAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
 Db 276 LEDAELELEKVLATLDPGKQTQDELDKAAAEALNKKVEALQNVAELEBEELSKLEDNLK 335
 Qy 60 DAETN-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
 Db 336 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 10
 US-10-414-532-26
 ; Sequence 26, Application US/10414532
 ; Publication No. US200401015311
 ; GENERAL INFORMATION:
 ; APPLICANT: CURTISS III, ROY
 ; APPLICANT: KANG, HO YOUNG
 ; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
 ; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
 ; FILE REFERENCE: 56029-40437
 ; CURRENT APPLICATION NUMBER: US/10/414,532
 ; PRIOR FILING DATE: 2003-04-15
 ; PRIOR APPLICATION NUMBER: 60/372,710
 ; PRIOR FILING DATE: 2002-04-16
 ; NUMBER OF SEQ ID NOS: 72
 ; SOFTWARE: PatentIn Ver. 3.2
 ; SEQ ID NO 26
 ; LENGTH: 653
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 US-10-414-532-26

Query Match 87.0%; Score 455; DB 16; Length 653;
 Best Local Similarity 89.8%; Pred. No. 1.5e-27;
 Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPGKQTQDELDKAAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
 Db 276 LEDAELELEKVLATLDPGKQTQDELDKAAAEALNKKVEALQNVAELEBEELSKLEDNLK 335
 Qy 60 DAETN-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
 Db 336 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 11
 US-10-674-755-26
 ; Sequence 26, Application US/10674755
 ; Publication No. US20040067237A1
 ; GENERAL INFORMATION:
 ; APPLICANT: BECKER et al.
 ; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
 ; FILE REFERENCE: 454312-2471
 ; CURRENT APPLICATION NUMBER: US/10/674,755
 ; CURRENT FILING DATE: 2003-09-30
 ; PRIOR APPLICATION NUMBER: US/09/147,875A
 ; PRIOR FILING DATE: 1999-05-24
 ; NUMBER OF SEQ ID NOS: 28
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 26
 ; LENGTH: 108
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 ; FEATURE:
 ; NAME/KEY: UNSURE
 ; LOCATION: (1)..(108)
 ; OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
 US-10-674-755-26

Query Match 83.9%; Score 439; DB 15; Length 108;
 Best Local Similarity 88.0%; Pred. No. 3.4e-27;
 Matches 95; Conservative 4; Mismatches 7; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPGKQTQDELDKAAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59

Db 1 LEKAAELENLLSTLDPGKQTQDELDKAAAEALNKKVEALPNVXLEBEELSPEDNLK 60
 Qy 60 DAETN-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
 Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGEDEE 108

RESULT 12
 US-10-299-636-84
 ; Sequence 84, Application US/10299636
 ; Publication No. US20040077847A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Briles, David E
 ; APPLICANT: McDaniel, Larry S
 ; APPLICANT: Swiatlo, Edwin
 ; APPLICANT: Yotter, Janet
 ; APPLICANT: Crain, Marilyn J
 ; APPLICANT: Hollingshead, Susan
 ; APPLICANT: Tart, Rebecca
 ; APPLICANT: Brooke-Walter, Alexis
 ; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
 ; FILE REFERENCE: 57909/361
 ; CURRENT APPLICATION NUMBER: US/10/299,636
 ; CURRENT FILING DATE: 2002-11-19
 ; PRIOR APPLICATION NUMBER: 08/714,741
 ; PRIOR FILING DATE: 1996-09-16
 ; PRIOR APPLICATION NUMBER: 08/529,055
 ; PRIOR FILING DATE: 1995-09-15
 ; NUMBER OF SEQ ID NOS: 111
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 84
 ; LENGTH: 185
 ; TYPE: PRT
 ; ORGANISM: Streptococcus pneumoniae
 ; FEATURE:
 ; NAME/KEY: UNSURE
 ; LOCATION: (45)
 ; OTHER INFORMATION: Xaa at position 45 is unknown
 US-10-299-636-84

Query Match 79.0%; Score 413; DB 15; Length 185;
 Best Local Similarity 83.2%; Pred. No. 7e-25;
 Matches 89; Conservative 6; Mismatches 10; Indels 2; Gaps 2;

Qy 2 EKAAELENLLSTLDPGKQTQDELDKAAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 60
 Db 1 KQKQVNLNLLSTLDPGKQTQDELDKAAAEALNKKVEALPNVXLEBEELSPEDNLK 60
 Qy 61 AETN-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
 Db 61 AETNNVEDYIKEGLEEAIAATKQAELEETPOEVDAAALNDLVPDGEDEE 107

RESULT 13
 US-10-299-636-62
 ; Sequence 62, Application US/10299636
 ; Publication No. US20040077847A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Briles, David E
 ; APPLICANT: McDaniel, Larry S
 ; APPLICANT: Swiatlo, Edwin
 ; APPLICANT: Yotter, Janet
 ; APPLICANT: Crain, Marilyn J
 ; APPLICANT: Hollingshead, Susan
 ; APPLICANT: Tart, Rebecca
 ; APPLICANT: Brooke-Walter, Alexis
 ; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
 ; FILE REFERENCE: 57909/361
 ; CURRENT APPLICATION NUMBER: US/10/299,636
 ; CURRENT FILING DATE: 2002-11-19
 ; PRIOR APPLICATION NUMBER: 08/714,741
 ; PRIOR FILING DATE: 1996-09-16

Db 88 DAETHNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 135

RESULT 6

US-10-674-755-25
; Sequence 25, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 25
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-25

Query Match 87.0%; Score 455; DB 15; Length 108;
Best Local Similarity 89.8%; Pred. No. 1.9e-28;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAEAELENLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59

Db 1 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVQVAELEEELSKLEDNLK 60

Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106

Db 61 DAETHNVEDYIKEGLEEAIAATKAELEKTPKELDAALNELGPDGDEEE 108

RESULT 7

US-10-299-636-85
; Sequence 85, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 85
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-85

Query Match 87.0%; Score 455; DB 15; Length 232;
Best Local Similarity 89.8%; Pred. No. 4.5e-28;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAEAELENLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59

Db 51 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVQVAELEEELSKLEDNLK 110

Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106

Db 111 DAETHNVEDYIKEGLEEAIAATKAELEKTPKELDAALNELGPDGDEEE 158

RESULT 8

US-10-414-532-1
; Sequence 1, Application US/10414532
; Publication No. US20040101531A1
; GENERAL INFORMATION:
; APPLICANT: CURTISS III, ROY
; APPLICANT: KANG, HO YOUNG
; TITLE OF INVENTION: IMPROVED IMMUNOGENIC COMPOSITIONS AND VACCINES COMPRISING
; TITLE OF INVENTION: CARRIER BACTERIA THAT SECRETE ANTIGENS
; FILE REFERENCE: 56029-40437
; CURRENT APPLICATION NUMBER: US/10/414,532
; CURRENT FILING DATE: 2003-04-15
; PRIOR APPLICATION NUMBER: 60/372,710
; PRIOR FILING DATE: 2002-04-16
; NUMBER OF SEQ ID NOS: 72
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 1
; LENGTH: 275
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-414-532-1

Query Match 87.0%; Score 455; DB 16; Length 275;
Best Local Similarity 89.8%; Pred. No. 5.5e-28;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAEAELENLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59

Db 167 LEDAELELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVQVAELEEELSKLEDNLK 226

Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEEE 106

Db 227 DAETHNVEDYIKEGLEEAIAATKAELEKTPKELDAALNELGPDGDEEE 274

RESULT 9

US-10-299-636-88
; Sequence 88, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 88
; LENGTH: 458
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-88

Query Match 87.0%; Score 455; DB 15; Length 458;
Best Local Similarity 89.8%; Pred. No. 1e-27;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

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US-10-674-755-23
; Sequence 23, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 23
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-23

Query Match          96.0%; Score 502; DB 15; Length 108;
Best Local Similarity 98.1%; Pred. No. 3.8e-32;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEBEELSKLEDNLK 60

Qy 60 DAET-NVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 61 DAETNNVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 3
US-10-299-636-82
; Sequence 82, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 82
; LENGTH: 211
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-82

Query Match          96.0%; Score 502; DB 15; Length 211;
Best Local Similarity 98.1%; Pred. No. 8.2e-32;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 25 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVSELEBEELSKLEDNLK 84

Qy 60 DAET-NVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 85 DAETNNVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 132

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RESULT 4
US-10-674-755-24
; Sequence 24, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-24

Query Match          93.3%; Score 488; DB 15; Length 108;
Best Local Similarity 96.3%; Pred. No. 4.7e-31;
Matches 104; Conservative 0; Mismatches 2; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 1 LEKAGAGLELLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVAELEBEELSKLEDNLK 60

Qy 60 DAETN-NVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 61 DAETNNVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 108

RESULT 5
US-10-299-636-83
; Sequence 83, Application US/10299636
; Publication No. US20040077847A1
; GENERAL INFORMATION:
; APPLICANT: Briles, David E
; APPLICANT: McDaniel, Larry S
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Crain, Marilyn J
; APPLICANT: Hollingshead, Susan
; APPLICANT: Tart, Rebecca
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: PNEUMOCOCCAL SURFACE PROTEINS AND USES THEREOF
; FILE REFERENCE: 57909/361
; CURRENT APPLICATION NUMBER: US/10/299,636
; CURRENT FILING DATE: 2002-11-19
; PRIOR APPLICATION NUMBER: 08/714,741
; PRIOR FILING DATE: 1996-09-16
; PRIOR APPLICATION NUMBER: 08/529,055
; PRIOR FILING DATE: 1995-09-15
; NUMBER OF SEQ ID NOS: 111
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 83
; LENGTH: 212
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-299-636-83

Query Match          92.0%; Score 481; DB 15; Length 212;
Best Local Similarity 95.4%; Pred. No. 3.7e-30;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKEAAEALNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 28 LEKAGAGLELLSTLDPEGKTQDELKKEAAEALNKKVEALPNQVAELEBEELSKLEDNLK 87

Qy 60 DAETN-NVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106

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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:29:52 ; Search time 70.5017 Seconds
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Title: US-10-674-755-22
Perfect score: 523
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Total number of hits satisfying chosen parameters: 1867879

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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10: /cgn2_6/ptodata/1/pubpaa/US09B_PUBCOMB.pep.*
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21: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep.*
22: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	523	100.0	106	15	US-10-674-755-22
2	502	96.0	108	15	US-10-674-755-23
3	502	96.0	211	15	US-10-299-636-82
4	488	93.3	108	15	US-10-674-755-24
5	481	92.0	212	15	US-10-299-636-83
6	455	87.0	108	15	US-10-674-755-25
7	455	87.0	232	15	US-10-299-636-85
8	455	87.0	275	16	US-10-414-532-1
9	455	87.0	458	15	US-10-299-636-88
10	455	87.0	653	16	US-10-414-532-26
11	439	83.9	108	15	US-10-674-755-26
Sequence 22, Appl					
Sequence 23, Appl					
Sequence 82, Appl					
Sequence 24, Appl					
Sequence 83, Appl					
Sequence 25, Appl					
Sequence 85, Appl					
Sequence 1, Appl					
Sequence 86, Appl					
Sequence 26, Appl					

12	413	79.0	185	15	US-10-299-636-84	Sequence 84, Appl
13	315	60.2	213	15	US-10-299-636-62	Sequence 62, Appl
14	311	59.5	104	15	US-10-674-755-21	Sequence 21, Appl
15	309	59.1	104	15	US-10-674-755-20	Sequence 20, Appl
16	304	58.1	744	10	US-09-769-787-184	Sequence 184, Appl
17	304	58.1	744	17	US-10-472-528-32	Sequence 32, Appl
18	303	57.9	641	9	US-09-765-272-160	Sequence 160, Appl
19	303	57.9	641	20	US-11-106-649-160	Sequence 160, Appl
20	300	57.4	197	15	US-10-299-636-59	Sequence 59, Appl
21	296.5	56.7	459	15	US-10-702-305A-18	Sequence 18, Appl
22	288	55.1	102	15	US-10-674-755-18	Sequence 18, Appl
23	275	52.6	233	15	US-10-299-636-67	Sequence 67, Appl
24	272	52.0	487	16	US-10-414-532-34	Sequence 34, Appl
25	272	52.0	487	16	US-10-414-532-21	Sequence 21, Appl
26	272	52.0	524	16	US-10-414-532-28	Sequence 28, Appl
27	262.5	50.2	290	16	US-10-414-532-65	Sequence 65, Appl
28	260.5	49.8	230	16	US-10-414-532-32	Sequence 32, Appl
29	260.5	49.8	230	16	US-10-414-533-19	Sequence 19, Appl
30	257.5	49.2	119	15	US-10-674-755-27	Sequence 27, Appl
31	257.5	49.2	215	15	US-10-299-636-58	Sequence 58, Appl
32	225	43.0	80	15	US-10-674-755-19	Sequence 19, Appl
33	194	37.1	354	15	US-10-299-636-105	Sequence 105, Appl
34	194	37.1	588	15	US-10-299-636-96	Sequence 96, Appl
35	194	37.1	619	10	US-09-882-774-1	Sequence 1, Appl
36	194	37.1	619	15	US-10-282-122A-73702	Sequence 73702, A
37	194	37.1	619	16	US-10-414-532-72	Sequence 72, Appl
38	182	34.8	204	15	US-10-299-636-66	Sequence 66, Appl
39	178	34.0	99	15	US-10-674-755-11	Sequence 11, Appl
40	173	33.1	198	15	US-10-299-636-76	Sequence 76, Appl
41	169.5	32.4	100	15	US-10-674-755-12	Sequence 12, Appl
42	167	31.9	141	14	US-10-254-995-2	Sequence 14, Appl
43	167	31.9	589	9	US-09-748-875-14	Sequence 14, Appl
44	167	31.9	589	10	US-09-298-523B-14	Sequence 14, Appl
45	167	31.9	589	15	US-10-299-636-97	Sequence 97, Appl

ALIGNMENTS

RESULT 1
US-10-674-755-22
; Sequence 22, Application US/10674755
; Publication No. US20040067237A1
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/10/674,755
; CURRENT FILING DATE: 2003-09-30
; PRIOR APPLICATION NUMBER: US/09/147,875A
; PRIOR FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 22
; LENGTH: 106
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-10-674-755-22

Query Match 100.0%; Score 523; DB 15; Length 106;
Best Local Similarity 100.0%; Pred. No. 8.2e-34;
Matches 106; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	LEKAEAELENLSTLDPEGKTQDELKAEAELENKKVEALPNQVLEFEELSKLDNLKD	60
Db	1	LEKAEAELENLSTLDPEGKTQDELKAEAELENKKVEALPNQVLEFEELSKLDNLKD	60
Qy	61	AETNVEDIKESGLEEATATKQAELEKTPKELDAALNELGPDGDEEE	106
Db	61	AETNVEDIKESGLEEATATKQAELEKTPKELDAALNELGPDGDEEE	106

RESULT 2

MOLECULE TYPE: peptide
US-08-529-055-73

Query Match 87.0%; Score 455; DB 4; Length 458;
Best Local Similarity 89.8%; Pred. No. 1.4e-32;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;
QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 276 LEAAELEKVLATLDPEGKTQDELDKAAAEALNKKVEALQNVAAELEEELSKLEDNLK 335
QY 60 DAETNVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 336 DAETNNVEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 383

RESULT 14

US-08-710-749-25
Sequence 25, Application US/08710749
Patent No. 5955089
GENERAL INFORMATION:
APPLICANT: Briles, David E.
APPLICANT: Hollingshead, Susan
APPLICANT: Becker, Robert
TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
PROTEINS
NUMBER OF SEQUENCES: 28
CORRESPONDENCE ADDRESS:
ADDRESS: Curtis, Morris & Safford
STREET: 530 Fifth Avenue
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/710,749
FILING DATE: 20-SEP-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2074
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 25:
SEQUENCE CHARACTERISTICS:
LENGTH: 108 amino acids
TYPE: amino acid
STRANDEDNESS: n/a
TOPOLOGY: linear
MOLECULE TYPE: amino acid
US-08-710-749-25

Query Match 83.9%; Score 439; DB 2; Length 108;
Best Local Similarity 88.0%; Pred. No. 6.3e-32;
Matches 95; Conservative 4; Mismatches 7; Indels 2; Gaps 2;
QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNPVXELEEELSPEDNLK 60
QY 60 DAETN-VEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 61 DAETNHVEDYIKGLEEAAIATKQAELEETPQEVDAALNDLVPDGGEEE 108

RESULT 15

US-09-147-875A-26
Sequence 26, Application US/09147875A
Patent No. 6638516
GENERAL INFORMATION:
APPLICANT: BECKER et al.
TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
FILE REFERENCE: 454312-2471
CURRENT APPLICATION NUMBER: US/09/147,875A
CURRENT FILING DATE: 1999-05-24
NUMBER OF SEQ ID NOS: 28
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 26
LENGTH: 108
TYPE: PRT
ORGANISM: Streptococcus pneumoniae
FEATURE:
NAME/KEY: UNSURE
LOCATION: (1)..(108)
OTHER INFORMATION: amino acid 'Xaa' can be any amino acid
US-09-147-875A-26

Query Match 83.9%; Score 439; DB 4; Length 108;
Best Local Similarity 88.0%; Pred. No. 6.3e-32;
Matches 95; Conservative 4; Mismatches 7; Indels 2; Gaps 2;
QY 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNPVXELEEELSPEDNLK 60
QY 60 DAETN-VEDYIKGLEEAAIATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 61 DAETNHVEDYIKGLEEAAIATKQAELEETPQEVDAALNDLVPDGGEEE 108

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Job time : 21.5334 secs

CLASSIFICATION: 432

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; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-529-055-68

Query Match          92.0%; Score 481; DB 2; Length 108;
Best Local Similarity 95.4%; Pred. No. 1.2e-35;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPGKTKQDELKKEAAEALNKKVEALPNQV-ELEBELSKLEDNLK 59
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Db 1 LEKAGAGLGNLLSTLDPGKTKQDELKKEAAEALNKKVEALPNQVSELEBELSKLEDNLK 60
   |||||

Qy 60 DAETN-VDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 106
   |||||
Db 61 DAETNHVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 108
   |||||

RESULT 9
US-08-529-055-68
; Sequence 68, Application US/08529055
; Patent No. 6592876
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: McDaniel, Larry S.
; APPLICANT: Swiatlo, Edwin
; APPLICANT: Yother, Janet
; APPLICANT: Brooks-Walter, Alexis
; TITLE OF INVENTION: Pneumococcal Genes, Portions
; TITLE OF INVENTION: Thereof, Expression Products
; TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
; TITLE OF INVENTION: Portions and Products
; NUMBER OF SEQUENCES: 73
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: NY
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/529,055
; FILING DATE: 15-SEP-1995
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; INFORMATION FOR SEQ ID NO: 24:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-710-749-24

Query Match          87.0%; Score 455; DB 2; Length 108;
Best Local Similarity 89.8%; Pred. No. 2.4e-33;

; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2400
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 68:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 212 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-529-055-68

Query Match          92.0%; Score 481; DB 4; Length 212;
Best Local Similarity 95.4%; Pred. No. 2.7e-35;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPGKTKQDELKKEAAEALNKKVEALPNQV-ELEBELSKLEDNLK 59
   |||||
Db 28 LEKAGAGLGNLLSTLDPGKTKQDELKKEAAEALNKKVEALPNQVAELEBELSKLEDNLK 87
   |||||

Qy 60 DAETN-VDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 106
   |||||
Db 88 DAETNHVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELPGDGDEE 135
   |||||

RESULT 10
US-08-710-749-24
; Sequence 24, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 24:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
; US-08-710-749-24

Query Match          87.0%; Score 455; DB 2; Length 108;
Best Local Similarity 89.8%; Pred. No. 2.4e-33;
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; ADDRESSEE: Curtis, Morris & Safford, P.C.
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: U.S.
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/714,741
; FILING DATE: 16-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer Esq., William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2460
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 32:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 8991 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-714-741-32

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Query Match          96.0%; Score 502; DB 4; Length 8991;
Best Local Similarity 98.1%; Pred. No. 3.3e-35;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

QY 1 LEKAAELENLSTLDPEGKTQDELKAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 7981 LEKAAELENLSTLDPEGKTQDELKAAEALNKKVEALPNQVSELEEELSKLEDNLK 8040

QY 60 DAETN-VEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 8041 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 8088

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RESULT 6
US-09-147-875A-24
; Sequence 24, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: Patent In Ver. 2.1
; SEQ ID NO 24
; LENGTH: 108
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-24

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Query Match          93.3%; Score 488; DB 4; Length 108;
Best Local Similarity 96.3%; Pred. No. 2.9e-36;
Matches 104; Conservative 0; Mismatches 2; Indels 2; Gaps 2;

QY 1 LEKAAELENLSTLDPEGKTQDELKAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 1 LEKAGAGLNLSTLDPEGKTQDELKAAEALNKKVEALPNQVAELEEELSKLEDNLK 60

QY 60 DAETN-VEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

```

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RESULT 7
US-08-710-749-22
; Sequence 22, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/710,749
; FILING DATE: 20-SEP-1996
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Frommer, William S.
; REGISTRATION NUMBER: 25,506
; REFERENCE/DOCKET NUMBER: 454312-2074
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (212) 840-3333
; TELEFAX: (212) 840-0712
; INFORMATION FOR SEQ ID NO: 22:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 108 amino acids
; TYPE: amino acid
; STRANDEDNESS: n/a
; TOPOLOGY: linear
; MOLECULE TYPE: amino acid
US-08-710-749-22

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Query Match          92.0%; Score 481; DB 2; Length 108;
Best Local Similarity 95.4%; Pred. No. 1.2e-35;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

QY 1 LEKAAELENLSTLDPEGKTQDELKAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 1 LEKAGAGLNLSTLDPEGKTQDELKAAEALNKKVEALPNQVSELEEELSKLEDNLK 60

QY 60 DAETN-VEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

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RESULT 8
US-08-710-749-23
; Sequence 23, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York

```


MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/710,749
FILING DATE: 20-SEP-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2074
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 26:
SEQUENCE CHARACTERISTICS:
LENGTH: 108 amino acids
TYPE: amino acid
STRANDEDNESS: n/a
TOPOLOGY: linear
MOLECULE TYPE: amino acid
US-08-710-749-26

Query Match 96.0%; Score 502; DB 2; Length 108;
Best Local Similarity 98.1%; Pred. No. 1.7e-37;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOV-ELEELSLEDNLK 59
Db 1 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOVSELEELSLEDNLK 60
Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

RESULT 3

US-09-147-875A-23
Sequence 23, Application US/09147875A
Patent No. 6638516
GENERAL INFORMATION:
APPLICANT: BECKER et al.
TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
FILE REFERENCE: 454312-2471
CURRENT APPLICATION NUMBER: US/09/147,875A
CURRENT FILING DATE: 1999-05-24
NUMBER OF SEQ ID NOS: 28
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 23
LENGTH: 108
TYPE: PRT
ORGANISM: Streptococcus pneumoniae
US-09-147-875A-23

Query Match 96.0%; Score 502; DB 4; Length 108;
Best Local Similarity 98.1%; Pred. No. 1.7e-37;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOV-ELEELSLEDNLK 59
Db 1 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOVSELEELSLEDNLK 60
Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 61 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 108

RESULT 4

US-08-529-055-67
Sequence 67, Application US/08529055
Patent No. 6592876
GENERAL INFORMATION:

APPLICANT: Briles, David E.
APPLICANT: McDaniel, Larry S.
APPLICANT: Swiatlo, Edwin
APPLICANT: Yother, Janet
APPLICANT: Brooks-Walter, Alexis
TITLE OF INVENTION: Pneumococcal Genes, Portions
TITLE OF INVENTION: Thereof, Expression Products
TITLE OF INVENTION: Therefrom, and Uses of Such Genes,
TITLE OF INVENTION: Portions and Products
NUMBER OF SEQUENCES: 73
CORRESPONDENCE ADDRESS:
ADDRESSEE: Curtis, Morris & Safford, P.C.
STREET: 530 Fifth Avenue
CITY: New York
STATE: NY
COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/529,055
FILING DATE: 15-SEP-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Frommer, William S.
REGISTRATION NUMBER: 25,506
REFERENCE/DOCKET NUMBER: 454312-2400
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 840-3333
TELEFAX: (212) 840-0712
INFORMATION FOR SEQ ID NO: 67:
SEQUENCE CHARACTERISTICS:
LENGTH: 211 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-529-055-67

Query Match 96.0%; Score 502; DB 4; Length 211;
Best Local Similarity 98.1%; Pred. No. 3.7e-37;
Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOV-ELEELSLEDNLK 59
Db 25 LEKAAELENLLSTLDPEGKTQDELKAAAEALNKKVEALPNOVSELEELSLEDNLK 84
Qy 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 85 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 132

RESULT 5

US-08-714-741-32
Sequence 32, Application US/08714741
Patent No. 6500613
GENERAL INFORMATION:
APPLICANT: Briles, David E.
APPLICANT: McDaniel, Larry S.
APPLICANT: Swiatlo, Edwin
APPLICANT: Yother, Janet
APPLICANT: Crain, Marilyn J.
APPLICANT: Hollingshead, Susan
APPLICANT: Tart, Rebecca
APPLICANT: Brooks-Walter, Alexis
TITLE OF INVENTION: PNEUMOCOCCAL GENES, PORTIONS THEREOF,
TITLE OF INVENTION: EXPRESSION PRODUCTS THEREFROM, AND USES OF SUCH GENES,
TITLE OF INVENTION: PORTIONS AND PRODUCTS
NUMBER OF SEQUENCES: 47
CORRESPONDENCE ADDRESS:

GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 17, 2005, 18:59:20 ; Search time 20.4084 Seconds
(without alignments)
387.723 Million cell updates/sec

Title: US-10-674-755-22
Perfect score: 523
Sequence: 1 LEKAEAELENLLTLDPEGK.....TPKELDAALNELGPDGDEE 106

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued Patents AA:*
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2: /cgn2_6/ptodata/1/1aa/5B_COMB.pep.*
3: /cgn2_6/ptodata/1/1aa/6A_COMB.pep.*
4: /cgn2_6/ptodata/1/1aa/6B_COMB.pep.*
5: /cgn2_6/ptodata/1/1aa/PCTUS_COMB.pep.*
6: /cgn2_6/ptodata/1/1aa/backfiles1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	523	100.0	106	4	US-09-147-875A-22
2	502	96.0	108	2	US-08-710-749-26
3	502	96.0	108	4	US-09-147-875A-23
4	502	96.0	211	4	US-08-529-055-67
5	502	96.0	8991	4	US-08-714-741-32
6	488	93.3	108	4	US-09-147-875A-24
7	481	92.0	108	2	US-08-710-749-22
8	481	92.0	108	2	US-08-710-749-23
9	481	92.0	212	4	US-08-529-055-68
10	455	87.0	108	2	US-08-710-749-24
11	455	87.0	108	4	US-09-147-875A-25
12	455	87.0	232	4	US-08-529-055-70
13	455	87.0	458	4	US-08-529-055-73
14	439	83.9	108	2	US-08-710-749-25
15	439	83.9	108	4	US-09-147-875A-26
16	413	79.0	185	4	US-08-529-055-69
17	319	61.0	104	2	US-08-710-749-20
18	315	60.2	213	4	US-08-529-055-47
19	311	59.5	104	4	US-09-147-875A-21
20	309	59.1	104	2	US-08-710-749-19
21	309	59.1	104	4	US-09-147-875A-20
22	303	57.9	641	3	US-08-961-083-160
23	303	57.9	641	4	US-09-536-784-160
24	300	57.4	197	4	US-08-529-055-44
25	288	55.1	102	2	US-08-710-749-21
26	288	55.1	102	4	US-09-147-875A-18
27	275	52.6	233	4	US-08-529-055-52

28	257.5	49.2	119	2	US-08-710-749-27	Sequence 27, Appl
29	257.5	49.2	119	4	US-09-147-875A-27	Sequence 27, Appl
30	257.5	49.2	215	4	US-08-529-055-43	Sequence 43, Appl
31	225	43.0	80	2	US-08-710-749-18	Sequence 18, Appl
32	225	43.0	80	4	US-09-147-875A-19	Sequence 19, Appl
33	194	37.1	288	3	US-08-312-949-4	Sequence 4, Appl
34	194	37.1	288	3	US-08-465-201-4	Sequence 4, Appl
35	194	37.1	619	1	US-08-746-2	Sequence 2, Appl
36	194	37.1	619	1	US-08-214-164-2	Sequence 2, Appl
37	194	37.1	619	2	US-08-467-852A-3	Sequence 3, Appl
38	194	37.1	619	2	US-08-246-636-2	Sequence 2, Appl
39	194	37.1	619	2	US-08-247-491A-3	Sequence 3, Appl
40	194	37.1	619	2	US-08-319-795-2	Sequence 2, Appl
41	194	37.1	619	3	US-08-468-985-2	Sequence 2, Appl
42	194	37.1	619	3	US-08-312-949-2	Sequence 2, Appl
43	194	37.1	648	1	US-08-072-070-2	Sequence 2, Appl
44	194	37.1	648	1	US-08-469-434-2	Sequence 2, Appl
45	194	37.1	648	1	US-08-214-222-2	Sequence 2, Appl

ALIGNMENTS

RESULT 1
US-09-147-875A-22
; Sequence 22, Application US/09147875A
; Patent No. 6638516
; GENERAL INFORMATION:
; APPLICANT: BECKER et al.
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE PROTEINS
; FILE REFERENCE: 454312-2471
; CURRENT APPLICATION NUMBER: US/09/147,875A
; CURRENT FILING DATE: 1999-05-24
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 22
; LENGTH: 106
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-147-875A-22

Query Match 100.0%; Score 523; DB 4; Length 106;
Best Local Similarity 100.0%; Pred. No. 2.3e-39;
Matches 106; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 LEKAEAELENLLTLDPEGKTODELDKAEAELENKKVEALPNQVEEELSKEEDNKKD 60
DB 1 LEKAEAELENLLTLDPEGKTODELDKAEAELENKKVEALPNQVEEELSKEEDNKKD 60
QY 61 AETNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 106
DB 61 AETNVEDYIKGLEAEATKQAELEKTPKELDAALNELGPDGDEE 106

RESULT 2
US-08-710-749-26
; Sequence 26, Application US/08710749
; Patent No. 5955089
; GENERAL INFORMATION:
; APPLICANT: Briles, David E.
; APPLICANT: Hollingshead, Susan
; APPLICANT: Becker, Robert
; TITLE OF INVENTION: STRAIN SELECTION OF PNEUMOCOCCAL SURFACE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESS: Curtis, Morris & Safford
; STREET: 530 Fifth Avenue
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036
; COMPUTER READABLE FORM:

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RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=20;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBDJ databases.
DR EMBL; AF255548; AAF68101.1; -.
DR HSSP; P04268; IIC2.
FT NON_TER 1
FT NON_TER 231
SQ SEQUENCE 231 AA; 24990 MW; A7731E3A46460186 CRC64;

Query Match 58.5%; Score 306; DB 2; Length 231;
Best Local Similarity 63.6%; Fred. No. 1.3e-10;
Matches 68; Conservative 12; Mismatches 23; Indels 4; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
Db 76 LAKKQTELEKLLDNLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 135

Qy 60 DAETNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
Db 136 GADPEDD---TAALQNKLATKKAELEKTKQKELDAALNELGPDGDEE 179

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Search completed: November 17, 2005, 20:37:52
Job time : 63.8331 secs

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RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
[2]
RC SEQUENCE FROM N.A.
RP STRAIN=SP220;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF254254; AAF68089.1; -.
FT NON_TER 1
FT NON_TER 256
SQ SEQUENCE 256 AA; 28378 MW; 650EA2D86CC523CE CRC64;

Query Match 61.3%; Score 320.5; DB 2; Length 256;
Best Local Similarity 58.2%; Pred. No. 2e-11;
Matches 71; Conservative 16; Mismatches 16; Indels 19; Gaps 4;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDEKAAEAELENKKVEALPNQV-----ELEBELS 52
Db 52 LEDAELELEKVLATLDPEGKTQDELDEKAAE---DANIEALQNKVADLENKVAELDKVET 108

Qy 53 KLEDNLKDA-ETNVEDYIKEGLEAEIATKQAELEKT-----PKELDAALNELGPDGDE 104
Db 109 RLQSDLKDAENNVEDYIKEGLEKALTDKKVELNNTQKALDTAOKALDTALNELGPDGDE 168

Qy 105 EE 106
Db 169 EE 170

RESULT 13
Q9KGS0
ID Q9KGS0 PRELIMINARY; PRT; 227 AA.
AC Q9KGS0;
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA protein (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=187;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).

Query Match 58.9%; Score 308; DB 2; Length 222;
Best Local Similarity 64.5%; Pred. No. 9.4e-11;
Matches 69; Conservative 12; Mismatches 22; Indels 4; Gaps 2;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDEKAAEAELENKKVEALPNQV-ELEBELSKLEDNLK 59
Db 32 LAKQGTGLEKLDLSLDPEGKTQDELDEKAAEAELENKKVESLQNKVADLEKEISNLEILG 91

Qy 60 DAETNVEDYIKEGLEAEIATKQAELEKTPEKELDAALNELGPDGDEEE 106
Db 92 GADPEDD---TAALQNKLATTTKAELEKTQKELDAALNELGPDGDEEE 135

RESULT 15
Q9L579
ID Q9L579 PRELIMINARY; PRT; 231 AA.
AC Q9L579;
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-MAR-2004 (TremBLrel. 26, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=20;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).

Qy 105 EE 106
Db 140 EE 141

RESULT 14
Q9L584
ID Q9L584 PRELIMINARY; PRT; 222 AA.
AC Q9L584;
DT 01-OCT-2000 (TremBLrel. 15, Created)
DT 01-OCT-2000 (TremBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TremBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=43;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=43;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).

Query Match 58.7%; Score 317.5; DB 2; Length 227;
Best Local Similarity 57.4%; Pred. No. 2.7e-11;
Matches 70; Conservative 17; Mismatches 16; Indels 19; Gaps 4;

Qy 1 LEKAEAELENLLSTLDPEGKTQDELDEKAAEAELENKKVEALPNQV-----ELEBELS 52
Db 23 LEDAELEKVLATLDPEGKTQDELDEKAAE---DANIEALQNKVADLENKVAELDKVET 79

Qy 53 KLEDNLKDA-ETNVEDYIKEGLEAEIATKQAELEKT-----PKELDAALNELGPDGDE 104
Db 80 RLQSDLKDAENNVEDYIKEGLEKALTDKKVELNNTQKALDTAOKALDTALNELGPDGDE 139
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ID Q8GNT0 PRELIMINARY; PRT; 211 AA.
AC Q8GNT0;
DT 01-MAR-2003 (TReMBLrel. 23, Created)
DT 01-MAR-2003 (TReMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP95;
RX MEDLINE=22241996; PubMed=12354862;
RA Dicunzio G., Gherardi G., Gertz R.E., D'Ambrosio F., Goglio A.,
RA Lorino G., Recchia S., Pantosti A., Beall B.;
RT "Genotypes of invasive pneumococcal isolates recently recovered from
RT Italian patients.";
RL J. Clin. Microbiol. 40:3660-3665(2002).
FR EMBL; AF490265; AAN37733.1; -.
FT NON_TER 1
FT NON_TER 211
SQ SEQUENCE 211 AA; 23207 MW; 096BFBEB08CD6483 CRC64;

Query Match 65.5%; Score 342.5; DB 2; Length 211;
Best Local Similarity 64.7%; Pred. No. 8.8e-13;
Matches 77; Conservative 12; Mismatches 17; Indels 13; Gaps 4;

Qy 1 LEKAAELENLSTLDPGKGTQDELDEKAAE-----AELNKKVEALPNQV-ELEBELSKLE 55
Db 5 LEKAAELENLSTLDPGKGTQDELDEKAAEDVNIEALQNKVADLENKVAELDKVETRLQ 64
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 56 DNLKDA-ETNVEDYIKEGLEBAIATKQAELEKT-----PKELDAALNELGPDGDEE 106
Db 65 SOLKDAENNVEDYIKEGLEKALTDKKVELNNTQKALDTAPKALDTALNELGPDGDEE 123

RESULT 10
ID Q9LAX6 PRELIMINARY; PRT; 461 AA.
AC Q9LAX6;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-MAR-2003 (TReMBLrel. 23, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=ATCC6303;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/IAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
RT in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071820; AAF27715.1; -.
FT NON_TER 461
FT NON_TER 461
SQ SEQUENCE 461 AA; 51563 MW; 249435F65585BB92 CRC64;

Query Match 62.8%; Score 328.5; DB 2; Length 461;
Best Local Similarity 59.0%; Pred. No. 1.2e-11;
Matches 72; Conservative 16; Mismatches 15; Indels 19; Gaps 4;

Qy 1 LEKAAELENLSTLDPGKGTQDELDEKAAEAEALNKKVEALPNQV-----ELEBELS 52
Db 273 LEDAELEKVLATLDPGKGTQDELDEKAAE--DANIEALQNKVADLENKVAELDKVET 329
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 53 KLEDNLKDA-ETNVEDYIKEGLEBAIATKQAELEKT-----PKELDAALNELGPDGDE 104
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

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Db 330 RLQSLDKDAENNVEDYIKEGLEKALTDKKVELNNTQKALDTAPKALDTALNELGPDGDE 389
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 105 EE 106
Db 390 EE 391

RESULT 11
ID Q9L562 PRELIMINARY; PRT; 242 AA.
AC Q9L562;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-MAR-2004 (TReMBLrel. 26, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=69;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally
RT disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=69;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF255308; AAF70098.1; -.
FT NON_TER 1
FT NON_TER 242
SQ SEQUENCE 242 AA; 25843 MW; 707EA930797D2C82 CRC64;

Query Match 61.4%; Score 321; DB 2; Length 242;
Best Local Similarity 66.4%; Pred. No. 1.8e-11;
Matches 71; Conservative 13; Mismatches 19; Indels 4; Gaps 2;

Qy 1 LEKAAELENLSTLDPGKGTQDELDEKAAEAEALNKKVEALPNQV-ELEBELSKLEDNLK 59
Db 70 LAKKQTELEKLDLSDLPDGKGTQDELDEKAAEAEALNKKVADLENKVAELKESINLEILG 129
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 60 DAETNVEDYIKEGLEBAIATKQAELEKT-----PKELDAALNELGPDGDEE 106
Db 130 GADSEDD---TAALQNKLATKAALEKTQKELDAALNELGPDGDEE 173
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

RESULT 12
ID Q9L595 PRELIMINARY; PRT; 256 AA.
AC Q9L595;
DT 01-OCT-2000 (TReMBLrel. 15, Created)
DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TReMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP220;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
RT pneumococcal strains in the United States and of internationally

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[1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG11703;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/JAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071821; AAF27716.1; -.
DR HSSP; P58301; 1L8D.
FT NON TER 481
SQ SEQUENCE 481 AA; 53500 MW; EA3C66445EFCE2B CRC64;

Query Match 92.9%; Score 486; DB 2; Length 481;
Best Local Similarity 96.3%; Pred. No. 9.1e-21;
Matches 104; Conservative 0; Mismatches 2; Indels 2; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALPNQV-ELEBEELSKLEDNLK 59
DB 295 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALQNVAELEBEELSKLEDNLK 354

QY 60 DAET-NVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
DB 355 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 402

RESULT 3
Q9L5B4 PRELIMINARY; PRT; 246 AA.
AC Q9L5B4;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RX MEDLINE=20472698; PubMed=11015380;
RA Beall B., Gherardi G., Facklam R.R., Hollingshead S.K.;
RT "Pneumococcal pspA sequence types of prevalent multiresistant
pneumococcal strains in the United States and of internationally
disseminated clones.";
RL J. Clin. Microbiol. 38:3663-3669(2000).
[2]
RP SEQUENCE FROM N.A.
RC STRAIN=SP198;
RA Beall B.W.;
RL Submitted (APR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF253408; AAF67356.1; -.
DR HSSP; P05412; 1JNM.
FT NON TER 1
FT NON TER 246
SQ SEQUENCE 246 AA; 26972 MW; 2190BED1460D26D9 CRC64;

Query Match 92.2%; Score 482; DB 2; Length 246;
Best Local Similarity 95.4%; Pred. No. 8.1e-21;
Matches 103; Conservative 1; Mismatches 2; Indels 2; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALPNQV-ELEBEELSKLEDNLK 59
DB 52 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALQNVAELEBEELSKLEDNLK 111

QY 60 DAET-NVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
DB 112 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 159

us-10-674-755-22.rup
[1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG11703;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/JAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071821; AAF27716.1; -.
DR HSSP; P58301; 1L8D.
FT NON TER 481
SQ SEQUENCE 481 AA; 53500 MW; EA3C66445EFCE2B CRC64;

Query Match 92.9%; Score 486; DB 2; Length 481;
Best Local Similarity 96.3%; Pred. No. 9.1e-21;
Matches 104; Conservative 0; Mismatches 2; Indels 2; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALPNQV-ELEBEELSKLEDNLK 59
DB 295 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALQNVAELEBEELSKLEDNLK 354

QY 60 DAET-NVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
DB 355 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 402

RESULT 4
Q8KQK2 PRELIMINARY; PRT; 107 AA.
AC Q8KQK2;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT 01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE Pneumococcal surface protein A (fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=255/00;
RX MEDLINE=22170754; PubMed=12183557;
RX DOI=10.1128/JAI.70.9.5086-5090.2002;
RA Miyaji E.N., Ferreira D.M., Lopes A.P.V., Brandileone M.C.C.,
RA Dias W.O., Leite L.C.C.;
RT "Analysis of serum cross-reactivity and cross-protection elicited by
immunizing PspA fragments from different clades.";
RL Infect. Immun. 70:5086-5090(2002).
DR EMBL; AY082390; AAL92495.1; -.
FT NON TER 1
FT NON TER 107
SQ SEQUENCE 107 AA; 11897 MW; 47913E25EE47D5CC CRC64;

Query Match 91.2%; Score 477; DB 2; Length 107;
Best Local Similarity 95.3%; Pred. No. 7e-21;
Matches 102; Conservative 1; Mismatches 2; Indels 2; Gaps 2;

QY 1 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALPNQV-ELEBEELSKLEDNLK 59
DB 1 LEKAAELENLLSTLDPEGKTQDELKKAABAEINKKVEALQNVAELEBEELSKLEDNLK 60

QY 60 DAET-NVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 105
DB 61 DAETNNVEDYIKGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 107

RESULT 5
Q9LAX3 PRELIMINARY; PRT; 480 AA.
AC Q9LAX3;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE PspA (Fragment).
GN Name=pspA;
OS Streptococcus pneumoniae.
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
OC Streptococcus.
OX NCBI_TaxID=1313;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BG7561;
RX MEDLINE=20448953; PubMed=10992499;
RX DOI=10.1128/JAI.68.10.5889-5900.2000;
RA Hollingshead S.K., Becker R., Briles D.E.;
RT "Diversity of PspA: mosaic genes and evidence for past recombination
in Streptococcus pneumoniae.";
RL Infect. Immun. 68:5889-5900(2000).
DR EMBL; AF071824; AAF27718.1; -.
DR InterPro; IPR000533; Tropomyosin.
DR PRINTS; PR00194; TROPOMYOSIN.
FT NON TER 480
SQ SEQUENCE 480 AA; 53043 MW; DA013C9E0190D7A0 CRC64;

Query Match 88.1%; Score 461; DB 2; Length 480;
Best Local Similarity 91.7%; Pred. No. 2.6e-19;
Matches 99; Conservative 3; Mismatches 4; Indels 2; Gaps 2;
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Result No.	Score	Query			DB	ID	Description
		Match	Length	†			
1	486	92.9	479	2	Q9LAX2	Q9LAX2 streptococc	
2	486	92.9	481	2	Q9LAX5	Q9LAX5 streptococc	
3	482	92.2	246	2	Q9L5B4	Q9L5B4 streptococc	
4	477	91.2	107	2	Q8KQK2	Q8KQK2 streptococc	
5	461	88.1	480	2	Q9LAX3	Q9LAX3 streptococc	
6	455	87.0	213	2	Q8GNS7	Q8GNS7 streptococc	
7	455	87.0	653	2	Q34097	Q34097 streptococc	
8	343.5	65.7	257	2	Q9L594	Q9L594 streptococc	
9	342.5	65.5	211	2	Q8GNT0	Q8GNT0 streptococc	
10	328.5	62.8	461	2	Q9LAX6	Q9LAX6 streptococc	
11	321	61.4	242	2	Q9L562	Q9L562 streptococc	
12	320.5	61.3	256	2	Q9L595	Q9L595 streptococc	
13	317.5	60.7	227	2	Q9LXG0	Q9LXG0 streptococc	
14	308	58.9	232	2	Q9L584	Q9L584 streptococc	
15	306	58.5	231	2	Q9L579	Q9L579 streptococc	
16	306	58.5	241	2	Q9L580	Q9L580 streptococc	
17	304	58.1	228	2	Q9L5B8	Q9L5B8 streptococc	
18	304	58.1	235	2	Q9L582	Q9L582 streptococc	
19	304	58.1	249	2	Q9L5D4	Q9L5D4 streptococc	
20	304	58.1	252	2	Q9L583	Q9L583 streptococc	
21	304	58.1	360	2	Q8KQK3	Q8KQK3 streptococc	
22	304	58.1	429	2	Q9LAX7	Q9LAX7 streptococc	
23	304	58.1	526	2	Q9LAX9	Q9LAX9 streptococc	
24	304	58.1	608	2	Q8VQ55	Q8VQ55 streptococc	
25	304	58.1	744	2	Q97T39	Q97T39 streptococc	
26	302	57.7	249	2	Q9L5B7	Q9L5B7 streptococc	
27	302	57.7	502	2	Q9LAX8	Q9LAX8 streptococc	
28	301	57.6	249	2	Q9L585	Q9L585 streptococc	
29	301	57.6	256	2	Q9L590	Q9L590 streptococc	
30	294	56.2	209	2	Q9L593	Q9L593 streptococc	
31	202	38.6	417	2	Q9LAX3	Q9LAX3 streptococc	

QY 52 SKLEDNLKDAETNVE-----DYIKGLELEAIATKQAELEKTPKELDAALNE 97
||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| :
Db 1550 QATEDAKLRLEVNLQAMKAQFDRDLQRDSQSEBKKQLVRQVREAMEALED 1601

RESULT 14

I51116 NF-180 - sea lamprey
C/Species: Petromyzon marinus (sea lamprey)
C/Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 09-Jul-2004
C/Accession: I51116
R/Jacobs, A.J.; Kamholz, J.; Selzer, M.E.
Brain Res. Mol. Brain Res. 29, 43-52, 1995
A/Title: The single lamprey neurofilament subunit (NF-180) lacks multiphosphorylation
A/Reference number: I51116; MUID:95287814; PMID:7770000
A/Accession: I51116
A/Status: preliminary; translated from GB/EMBL/DDBB
A/Molecule type: mRNA
A/Residues: 1-1110 <JAN>
A/Cross-references: UNIPROT:Q91255; EMBL:U19361; NID:g632548; PIDN:AAA80106.1; PID:g632548
C/Superfamily: neurofilament triplet H protein

Query Match 20.4%; Score 106.5; DB 2; Length 1110;
Best Local Similarity 32.5%; Pred. No. 18;
Matches 39; Conservative 18; Mismatches 42; Indels 21; Gaps 5;

QY 2 EKAAELENLLSLDPEGTKTQ----DELDKAAEAELNKKVAEPNOVEL-----EEE 50
||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| :
Db 639 EEEAEHEEVTS---KKAKTQEAEEVEEEEEAAEAEEAEAEAGEEDVEAESKEEEEE 695

QY 51 LSK-----LEDNLKDAETNVEDIYIKEGLELEAIATKQAELEKTPKELDAALNELPGDGDEE 106
||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| :
Db 696 DSKEADAEDAEEEEEVKEEVTKSDAEAEAEEAEBAEKSEEE--AAEEAKDEAEDEE 752

RESULT 15

I48153 myosin heavy chain beta, cardiac muscle [similarity] - golden hamster
C/Species: Mesocricetus auratus [golden hamster]
C/Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 09-Jul-2004
C/Accession: I48153; A28298
R/Wang, R.; Sole, M.J.; Cukerman, E.; Liew, C.C.
J. Mol. Cell. Cardiol. 26, 1155-1165, 1994
A/Title: Characterization and nucleotide sequence of the cardiac alpha-myosin heavy chain
A/Reference number: I48153; MUID:95115033; PMID:7815459
A/Accession: I48153
A/Status: preliminary; translated from GB/EMBL/DDBB
A/Molecule type: DNA
A/Residues: 1-1934 <RES>
A/Cross-references: UNIPROT:P13540; GB:I12104; NID:g402371; PIDN:AAA62313.1; PID:g402371
R/Jandreski, M.A.; Sole, M.J.; Liew, C.C.
Nucleic Acids Res. 16, 4737, 1988
A/Title: Sequence of cDNA encoding the Syrian hamster cardiac beta-myosin heavy chain.
A/Reference number: A28298; MUID:88247788; PMID:3380703
A/Accession: A28298
A/Molecule type: mRNA
A/Residues: 962-965,'E','E',967-980,'E','981-985','Q',987-1007,'A',1009,'E',1011,'RKT',1015-1018,
536,'L',1538-1555,'K',1557-1934 <JAN>
A/Cross-references: GB:X07273; NID:g49640; PIDN:CAA30256.1; PID:g49641
A/Note: the authors translated the codon GTG for residue 1504 as Leu
C/Geneids:
A/Introns: 66/3; 114/3; 167/1; 176/2; 212/3; 243/3; 265/1; 298/1; 332/3; 379/1; 418/3; 419/3; 1389/2; 1450/3; 1506/1; 1547/3; 1650/3; 1718/3; 1760/3; 1852/3; 1884/3; 1929/3
C/Superfamily: myosin heavy chain; myosin motor domain homolog
C/Keywords: actin binding; ATP; cardiac muscle; coiled coil; heart; muscle; nucleotide
F:87-765/Domain: myosin motor domain homolog <MMOT>
F:177-184/Region: nucleotide-binding motif A (P-loop)

Query Match 20.4%; Score 106.5; DB 2; Length 1934;
Best Local Similarity 30.6%; Pred. No. 32;
Matches 37; Conservative 23; Mismatches 44; Indels 17; Gaps 5;

Query Match	20.4%; Score 100.57	DB 2; Mengen 100%
Best Local Similarity	30.4%; Pred. NO. 32;	
Matches	37; Conservative	23; Mismatches
	44; Indels	17; Gaps
	5;	

Result No.	Score	Query Match	Length	ID	Description
1	304	58.1	744	2 F95013	pneumococcal surface
2	194	37.1	619	2 A97887	surface protein ps
3	194	37.1	619	2 A41971	surface protein ps
4	123.5	23.6	1938	1 A40997	myosin heavy chain
5	121.5	23.2	279	2 D71453	hypothetical prote
6	119	22.8	281	2 F75216	hypothetical prote
7	117.5	22.5	2139	2 T18296	myosin heavy chain
8	113	21.6	1940	2 A59287	myosin heavy chain
9	112	21.4	527	2 S33068	myosin heavy chain
10	110.5	21.1	1937	2 I38055	myosin heavy chain
11	109	20.8	1992	2 A47297	myosin heavy chain
12	108	20.7	1289	2 F84730	probable myosin he
13	108	20.7	1961	1 A61231	myosin heavy chain
14	106.5	20.4	1110	2 I51116	NF-180 - sea lamp
15	106.5	20.4	1934	2 I48153	myosin heavy chain
16	106	20.3	1837	2 T41023	probable nuclear p
17	105.5	20.2	858	2 S15762	neurofilament trip
18	105.5	20.2	1964	2 A52882	nonmuscle myosin I
19	104.5	20.0	853	2 T53505	hypothetical prote
20	104.5	20.0	1156	2 B70356	chromosome assembl
21	104.5	20.0	2116	2 A26655	myosin heavy chain
22	104	19.9	577	1 A41289	myosin - human
23	104	19.9	577	1 S39804	moesin - pig
24	104	19.9	1170	2 A72287	hypothetical prote
25	104	19.9	1931	2 A59234	slow myosin heavy
26	104	19.8	1976	2 A59252	myosin heavy chain
27	103.5	19.8	465	2 A03986	myosin alpha heavy
28	103.5	19.8	508	2 B72201	conserved hypothet
29	103.5	19.8	1164	2 T24806	hypothetical prote

```

DT 28-OCT-1997 (first entry)
DE Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Bg7561.
XX
FH Key Location/Qualifiers
FT Misc-difference 44
FT /note= "unidentified amino acid"
XX
FN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX
PA (UABR-) UAB RES FOUND.
XX
PI Briles DE, Mcdaniel LS, Swiatlo E, Yorher J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
DR WPI; 1997-202002/18.
XX
PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
PS Example 6; Fig 13; 296pp; English.
XX
CC This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7561.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX
SQ Sequence 184 AA;

Query Match 74.5%; Score 389.5; DB 2; Length 184;
Best Local Similarity 81.3%; Pred. No. 3.6e-25;
Matches 87; Conservative 6; Mismatches 11; Indels 3; Gaps 3;

QY 2 EKAAELENLLSTDPGGKTQDELDKAAEAELENKKVEALPNQV-ELFEELSKLEDNLKD 60
   : ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 KKQKNLENLLST-DPGGKTQDELDKGAAEAELENKKVEALPNVXELEELSPEDNLKD 59
   : ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 61 AETN-VEDYIKEGLEEATATKQAELEKTPKELDAALNELGPDGDEE 106
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 60 AETNVEDYIKEFLEEATATKQAELEETPQEVDAALNDLVDPGGGEE 106
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

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Search completed: November 17, 2005, 20:19:41
Job time : 76.3256 secs

Db 336 DAETNNVEDYIKEGLEEAIAATKKAELKTKQKELDAALNELGPDGDEEE 383

RESULT 13

AAW14590

ID AAW14590 standard; protein; 233 AA.

XX AC AAW14590;

XX DT 17-OCT-2003 (revised)

XX DT 28-OCT-1997 (first entry)

XX DE Streptococcus pneumoniae PspA central region.

XX KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;

XX KW bacteraemia; pneumonia.

XX OS Streptococcus pneumoniae; strain Ef5668.

XX PN WO9709994-A1.

XX PD 20-MAR-1997.

XX PF 16-SEP-1996; 96WO-US014819.

XX PR 15-SEP-1995; 95US-00529055.

XX PA (UABR-) UAB RES FOUND.

XX PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;

XX PI Hollingshead S, Tart R, Brooks-Walter A;

XX DR WPI; 1997-202002/18.

XX PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used

XX PT in vaccines for protecting animals against S.pneumoniae infection.

XX PS Example 6; Fig 13; 296pp; English.

XX CC This sequence shows the central portion, including the C-terminus of the

CC alpha-helix region and some of the proline-rich region, of pneumococcal

CC surface protein A (PspA) of Streptococcus pneumoniae strain Ef5668 (see

CC also AAW14592). Comparison of the N-terminal and central regions

CC (AAW14533-57 and AAW14562-91) of PspA from different pneumococcal strains

CC can be used to divide the strains into several families based on sequence

CC homologies. PspA polypeptides, or fragments of them, can be used in

CC vaccines to protect animals against S. pneumoniae infection and hence for

CC the prevention of diseases such as otitis media, meningitis, bacteraemia

CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical

CC region and the immediate 5' tip of the coding sequence are likely to be

CC the critical sequences for predicting PspA cross-reactions and vaccine

CC composition. (Updated on 17-OCT-2003 to standardise OS field)

XX SQ Sequence 233 AA;

Query Match 85.0%; Score 444.5; DB 2; Length 233;

Best Local Similarity 89.0%; Pred. No. 1.1e-29;

Matches 97; Conservative 4; Mismatches 5; Indels 3; Gaps 3;

QY 1 LEKAAELENLSTLDP-EGKTQDELDAEAEALNKVEALPNQV-ELEELSLEDNL 58

DB 51 LEDAELEKVLATLDPEEGKTQDELDAEAEALNKVEALQNVAELEELSLEDNL 110

QY 59 KDAET-NVEDYIKEGLEEAIAATKKAELKTKPKELDAALNELGPDGDEEE 106

DB 111 KDAETNNVEDYIKEGLEEAIAATKKAELKTKQKELDAALNELGPDGDEEE 159

RESULT 14

ABW02623

ID ABW02623 standard; protein; 185 AA.

XX AC ABW02623;

XX

DT 12-FEB-2004 (first entry)

DE Bg7561c pneumococcal surface protein A (PspA) central region.

XX KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;

XX KW immunological; gene therapy; immunostimulant.

XX OS Unidentified.

XX FH Key Location/Qualifiers

FT Misc-difference 45

FT /label= Unknown

XX PN US6592876-B1.

XX PD 15-JUL-2003.

XX PF 15-SEP-1995; 95US-00529055.

XX PR 20-APR-1993; 93US-00048896.

XX PR 06-JUN-1995; 95US-00465746.

XX PA (UABR-) UAB RES FOUND.

XX PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;

XX PI WPI; 2003-862841/80.

XX PT Immunological composition for obtaining expression products used for

XX PT detecting the presence of Streptococcus pneumoniae or its strain,

XX PT comprises at least two different full length isolated gene encoding

XX PT pneumococcal surface protein A.

XX PS Example 6; SEQ ID NO 69; 121pp; English.

XX CC The present invention relates to an immunological composition comprising

XX CC at least 2 different full length isolated genes encoding pneumococcal

XX CC surface protein A (PspAa) from different groups based on restriction

XX CC fragment polymorphism analysis. The invention is useful for obtaining

XX CC expression products by recombinant techniques to detect, determine,

XX CC isolate or diagnose the presence of Streptococcus pneumoniae or its

XX CC strain. The expression product is useful for preparing antibodies, an

XX CC immunological or vaccine compositions, for eliciting antibodies, or a

XX CC immunological response (other than or additional to antibodies) or a

XX CC protective response (including antibody or other immunological response

XX CC by administering compositions to a host). The invention is also useful as

XX CC vaccines and in gene therapy. The present sequence is Bg7561c

XX CC pneumococcal surface protein A (PspA) central region. This sequence is

XX CC used in the exemplification of the invention

XX SQ Sequence 185 AA;

Query Match 79.0%; Score 413; DB 7; Length 185;

Best Local Similarity 83.2%; Pred. No. 3.8e-27;

Matches 89; Conservative 6; Mismatches 10; Indels 2; Gaps 2;

QY 2 EKAAELENLSTLDP-EGKTQDELDAEAEALNKVEALPNQV-ELEELSLEDNLKD 60

DB 1 KKQKVNLENLSTLDP-EGKTQDELDAEAEALNKVEALPNVXLEELSPPEDNLKD 60

QY 61 AETN-VEDYIKEGLEEAIAATKKAELKTKPKELDAALNELGPDGDEEE 106

DB 61 AETNVEDYIKEGLEEAIAATKKAELKTKPKELDAALNELGPDGDEEE 107

RESULT 15

AAW14589

ID AAW14589 standard; protein; 184 AA.

XX AC AAW14589;

XX DT 17-OCT-2003 (revised)

	Matches	97;	Conservative	4;	Mismatches	3;	Indels	2;	Gaps	2
Qy	1	LEKAEALLENLSTLDPEGKTQDELDKAAEALNKKVVALPNQV-ELEELSKEEDNLK	59							

DR WPI; 2004-192068/18.
XX Treating Streptococcus pneumoniae infection in a subject lacking a
PT functional spleen comprises administering an antibody that recognizes
PT pneumococcal surface protein A (PspA) or its binding portion.
XX
XX Claim 17; SEQ ID NO 2; 41pp; English.
XX
XX The present invention relates to treating Streptococcus pneumoniae
CC infection in a subject lacking a functional spleen comprises
CC administering an antibody that recognizes pneumococcal surface protein A
CC (PspA) or its binding portion. The method is useful for treating or
CC preventing Streptococcus pneumoniae infection in a subject lacking a
CC functional spleen. The disease-associated injury is especially due to
CC hemolytic anemia disease, leukemia or lymphoma, especially sickle cell
CC anemia or Hodgkin's disease. The present sequence represents the alpha
CC helical region PspA molecule from the Rx1 strain of Streptococcus
CC pneumoniae.
XX
XX Sequence 369 AA;
SQ
Query Match 87.0%; Score 455; DB 8; Length 369;
Best Local Similarity 89.8%; Pred. No. 2.3e-30;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;
QY 1 LEKAAELENLSTLDPEGKTQDELDEKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
DB 245 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKVEALQNVAELEEELSKLEDNLK 304
QY 60 DAET-NVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 106
DB 305 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 352
RESULT 9
AAW14592
ID AAW14592 standard; protein; 458 AA.
XX
XX AAW14592;
XX
XX 17-OCT-2003 (revised)
DT 27-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA surface protein.
XX
XX PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
XX Streptococcus pneumoniae; strain Ef5668.
XX
XX WO9709994-A1.
XX
XX 20-MAR-1997.
XX
XX 16-SEP-1996; 96WO-US014819.
XX
XX 15-SEP-1995; 95US-00529055.
XX
XX (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
DR N-PSDB; AAT61724.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Disclosure; Fig 13; 296pp; English.
XX
XX This sequence comprises the pneumococcal surface protein A (pspA) of
CC Streptococcus pneumoniae strain Ef5668. The sequence was deduced from the

CC pspA gene (AAT61724). PspA polypeptides, or fragments of them, can be
CC used in vaccines to protect animals against S. pneumoniae infection and
CC hence for the prevention of diseases such as otitis media, meningitis,
CC bacteraemia and pneumonia. (Updated on 17-OCT-2003 to standardise OS
XX field)
XX
XX Sequence 458 AA;
SQ
Query Match 87.0%; Score 455; DB 2; Length 458;
Best Local Similarity 89.8%; Pred. No. 3e-30;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;
QY 1 LEKAAELENLSTLDPEGKTQDELDEKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
DB 276 LEDAELEKVLATLDPEGKTQDELDEKAAAEALNKKVEALQNVAELEEELSKLEDNLK 335
QY 60 DAET-NVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 106
DB 336 DAETNNVEDYIKEGLEEAIAIKQAELEKTPKELDAALNELGPDGDEE 383
RESULT 10
ABW02626
ID ABW02626 standard; protein; 458 AA.
XX
XX ABW02626;
XX
XX 12-FEB-2004 (first entry)
XX
XX Ef5668 pneumococcal surface protein A (PspA).
XX
XX Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
XX Unidentified.
XX
XX Key Location/Qualifiers
FH Misc-difference 458
FT /note= "Encoded by GC"
XX
XX US592876-B1.
XX
XX 15-JUL-2003.
XX
XX 15-SEP-1995; 95US-00529055.
XX
XX 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
XX (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI WPI; 2003-862841/80.
DR N-PSDB; AAD64535.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain.
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX
XX Example 6; SEQ ID NO 73; 121pp; English.
XX
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response

XX Pneumococcal surface protein A; PepA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX Unidentified.
XX US6592876-B1.
PN 15-JUL-2003.
XX 15-SEP-1995; 95US-00529055.
XX 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX (UABR-) UAB RES FOUND.
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI WPI; 2003-862841/80.
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.
XX Example 6; SEQ ID NO 70; 121pp; English.
XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PepA) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Ef5668c
CC pneumococcal surface protein A (PepA) central region. This sequence is
CC used in the exemplification of the invention
XX
SQ Sequence 232 AA;

Query Match 87.0%; Score 455; DB 7; Length 232;
Best Local Similarity 89.8%; Pred. No. 1.4e-30;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAELENLLSTLDPEGKTQDELKAEAAELNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 51 LEDAELEKLVATLDPEGKTQDELKAEAAELNKKVEALQNVQVAEELBEELSKLEDNLK 110

Qy 60 DAET-NVEDYIKEGLEAAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 111 DAETNNVEDYIKEGLEAAIAATKQAELEKTPKELDAALNELGPDGDEEE 158

RESULT 7
AD052055
ID AD052055 standard; protein; 275 AA.
XX
AC AD052055;
XX
XX 12-AUG-2004 (first entry)
DT
DE S. pneumoniae strain EF5688 PepA alpha helical domain.
XX
XX Immunogenic composition; vaccine; Th2-type immune response;
KW pneumococcal surface protein A; PepA.
XX Streptococcus pneumoniae.
OS
XX

PN US2004101531-A1.
XX 27-MAY-2004.
XX 15-APR-2003; 2003US-00414532.
XX 16-APR-2002; 2002US-0372710P.
PR (CURT/) CURTISS R.
PA (KANG/) KANG H Y.
XX
XX Curtiss R, Kang HY;
PI WPI; 2004-399655/37.
XX
XX New vaccine comprising a live attenuated strain of pathogenic gram-
PT negative bacteria, useful in eliciting a Th2-type immune response in a
PT vertebrate against pathogens, e.g., helminths, fungi, viruses, protozoans
PT or bacteria.
XX
XX Claim 17; SEQ ID NO 1; 94pp; English.
XX
XX The invention relates to immunogenic compositions and vaccines comprising
CC a live attenuated strain of pathogenic gram negative bacteria that
CC secretes an antigen. The vaccine is useful in eliciting a Th2-type immune
CC response in a vertebrate against pathogens, e.g., helminths, fungi,
CC viruses, protozoans or bacteria. The present sequence is Streptococcus
CC pneumoniae strain EF5688 pneumococcal surface protein A (PepA) alpha
CC helical domain. This sequence is used in the invention.
XX
SQ Sequence 275 AA;

Query Match 87.0%; Score 455; DB 8; Length 275;
Best Local Similarity 89.8%; Pred. No. 1.7e-30;
Matches 97; Conservative 4; Mismatches 5; Indels 2; Gaps 2;

Qy 1 LEKAELENLLSTLDPEGKTQDELKAEAAELNKKVEALPNQV-ELEBEELSKLEDNLK 59
Db 167 LEDAELEKLVATLDPEGKTQDELKAEAAELNKKVEALQNVQVAEELBEELSKLEDNLK 226

Qy 60 DAET-NVEDYIKEGLEAAIAATKQAELEKTPKELDAALNELGPDGDEEE 106
Db 227 DAETNNVEDYIKEGLEAAIAATKQAELEKTPKELDAALNELGPDGDEEE 274

RESULT 8
ADK32496
ID ADK52496 standard; protein; 369 AA.
XX
AC ADK52496;
XX
XX 20-MAY-2004 (first entry)
DT
XX alpha helical region PepA molecule from the Rx1 strain.
XX
XX Streptococcus pneumoniae infection; pneumococcal surface protein A; PepA;
KW hemolytic anemia disease; leukemia; lymphoma; sickle cell anemia;
KW Hodgkin's disease.
XX
XX Streptococcus pneumoniae.
OS
XX WO2004016231-A2.
PN
XX 26-FEB-2004.
PD
XX 17-FEB-2003; 2003WO-US008199.
XX
XX 15-MAR-2002; 2002US-0365351P.
PR
XX (UABR-) UAB RES FOUND.
PA
XX Briles DE;
PI
XX

QY 60 DAET-NVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
|||||
Db 8041 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 8088

RESULT 4

AAW14588
ID AAW14588 standard; protein; 212 AA.
XX
AC AAW14588;
XX
DT 17-OCT-2003 (revised)
DT 28-OCT-1997 (first entry)
XX
XX Streptococcus pneumoniae PspA central region.
XX
KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
KW bacteraemia; pneumonia.
XX
OS Streptococcus pneumoniae; strain Bg7817.
XX
PN WO9709994-A1.
XX
PD 20-MAR-1997.
XX
PF 16-SEP-1996; 96WO-US014819.
XX
PR 15-SEP-1995; 95US-00529055.
XX
XX (UABR-) UAB RES FOUND.
XX
PI Briles DE, McDaniel LS, Swiatlo E, Yother J, Crain MJ;
PI Hollingshead S, Tart R, Brooks-Walter A;
XX
XX WPI; 1997-202002/18.
XX
XX Streptococcus pneumoniae surface protein PspC and truncated PspA - used
PT in vaccines for protecting animals against S.pneumoniae infection.
XX
XX Example 6; Fig 13; 296pp; English.

XX This sequence shows the central portion, including the C-terminus of the
CC alpha-helix region and some of the proline-rich region, of pneumococcal
CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg7817.
CC Comparison of the N-terminal and central regions (AAW14533-57 and
CC AAW14562-91) of PspA polypeptides from different pneumococcal strains can
CC be used to divide the strains into several families based on sequence
CC homologies. PspA polypeptides, or fragments of them, can be used in
CC vaccines to protect animals against S. pneumoniae infection and hence for
CC the prevention of diseases such as otitis media, meningitis, bacteraemia
CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
CC region and the immediate 5' tip of the coding sequence are likely to be
CC the critical sequences for predicting PspA cross-reactions and vaccine
CC composition. (Updated on 17-OCT-2003 to standardise OS field)
XX

SQ Sequence 212 AA;

Query Match 92.0%; Score 481; DB 2; Length 212;
Best Local Similarity 95.4%; Pred. No. 7.8e-33;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

QY 1 LEKAEAELENLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
|||||
Db 28 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-AELEEELSKLEDNLK 87
|||||
QY 60 DAETN-VEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
|||||
Db 88 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 135
|||||

RESULT 5

ABW02622
ID ABW02622 standard; protein; 212 AA.

XX ABW02622;
AC
DT 12-FEB-2004 (first entry)
XX
DE Bg7817c pneumococcal surface protein A (PspA) central region.
XX
KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
PN US6592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
PA (UABR-) UAB RES FOUND.
XX
XX Briles DE, McDaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
PI WPI; 2003-862841/80.
XX
XX Immunological composition for obtaining expression products used for
PT detecting the presence of Streptococcus pneumoniae or its strain,
PT comprises at least two different full length isolated gene encoding
PT pneumococcal surface protein A.

XX Example 6; SEQ ID NO 68; 121pp; English.

XX The present invention relates to an immunological composition comprising
CC at least 2 different full length isolated genes encoding pneumococcal
CC surface protein A (PspAs) from different groups based on restriction
CC fragment polymorphism analysis. The invention is useful for obtaining
CC expression products by recombinant techniques to detect, determine,
CC isolate or diagnose the presence of Streptococcus pneumoniae or its
CC strain. The expression product is useful for preparing antigenic,
CC immunological or vaccine compositions, for eliciting antibodies, an
CC immunological response (other than or additional to antibodies) or a
CC protective response (including antibody or other immunological response
CC by administering compositions to a host). The invention is also useful as
CC vaccines and in gene therapy. The present sequence is Bg7817c
CC pneumococcal surface protein A (PspA) central region. This sequence is
CC used in the exemplification of the invention
XX

SQ Sequence 212 AA;

Query Match 92.0%; Score 481; DB 7; Length 212;
Best Local Similarity 95.4%; Pred. No. 7.8e-33;
Matches 103; Conservative 0; Mismatches 3; Indels 2; Gaps 2;

QY 1 LEKAEAELENLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-ELEEELSKLEDNLK 59
|||||
Db 28 LEKAGAGLGNLSTLDPEGKTQDELDKAAAEALNKKVEALPNQV-AELEEELSKLEDNLK 87
|||||
QY 60 DAETN-VEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 106
|||||
Db 88 DAETNNVEDYIKEGLEEAIAATKQAELEKTPKELDAALNELGPDGDEE 135
|||||

RESULT 6

ABW02624
ID ABW02624 standard; protein; 232 AA.

XX ABW02624;

XX 12-FEB-2004 (first entry)

XX Ef5668c pneumococcal surface protein A (PspA) central region.

CC vaccines and in gene therapy. The present sequence is Bg11703c
 CC pneumococcal surface protein A (PspA) central region. This sequence is
 CC used in the exemplification of the invention
 XX
 SQ Sequence 211 AA;

Query Match 96.0%; Score 502; DB 7; Length 211;
 Best Local Similarity 98.1%; Pred. No. 1.3e-34;
 Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQV-ELEEELSKLEDNLK 59
 |||||
 Db 25 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQVSELEEELSKLEDNLK 84
 |||||

Qy 60 DAET-NVEDYIKEGLEEAIAIKQAELKTPKELDAALNELGPDGDEEE 106
 |||||
 Db 85 DAETNNVEDYIKEGLEEAIAIKQAELKTPKELDAALNELGPDGDEEE 132
 |||||

RESULT 2
 AAW14587
 ID AAW14587 standard; protein; 238 AA.
 XX
 AC AAW14587;
 XX
 DT 17-OCT-2003 (revised)
 DT 28-OCT-1997 (first entry)
 XX
 DE Streptococcus pneumoniae PspA central region.
 XX
 KW PspA; pneumococcal surface protein; vaccine; otitis media; meningitis;
 KW bacteraemia; pneumonia.
 XX
 OS Streptococcus pneumoniae; strain Bg11703.
 XX
 PN WO9709994-A1.
 XX
 PD 20-MAR-1997.
 XX
 PF 16-SEP-1996; 96WO-US014819.
 XX
 PR 15-SEP-1995; 95US-00529055.
 XX
 PA (UABR-) UAB RES FOUND.
 XX
 PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
 PI Hollingshead S, Tart R, Brooks-Walter A;
 XX
 DR WPI; 1997-202002/18.
 XX
 PT Streptococcus pneumoniae surface protein PspC and truncated PspA - used
 PT in vaccines for protecting animals against S.pneumoniae infection.
 XX
 PS Example 6; Fig 13; 296pp; English.
 XX

This sequence shows the central portion, including the C-terminus of the
 CC alpha-helix region and some of the proline-rich region, of pneumococcal
 CC surface protein A (PspA) of Streptococcus pneumoniae strain Bg11703.
 CC Comparison of the N-terminal and central regions [AAW14533-57 and
 CC AAW14562-91] of PspA polypeptides from different pneumococcal strains can
 CC be used to divide the strains into several families based on sequence
 CC homologies. PspA polypeptides, or fragments of them, can be used in
 CC vaccines to protect animals against S. pneumoniae infection and hence for
 CC the prevention of diseases such as otitis media, meningitis, bacteraemia
 CC and pneumonia. The sequence of the 3' half of the PspA alpha-helical
 CC region and the immediate 5' tip of the coding sequence are likely to be
 CC the critical sequences for predicting PspA cross-reactions and vaccine
 CC composition. (Updated on 17-OCT-2003 to standardise OS field)

Qy Sequence 238 AA;
 SQ

Query Match 96.0%; Score 502; DB 2; Length 238;
 Best Local Similarity 98.1%; Pred. No. 1.5e-34;

Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQV-ELEEELSKLEDNLK 59
 |||||
 Db 25 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQVSELEEELSKLEDNLK 84
 |||||

Qy 60 DAET-NVEDYIKEGLEEAIAIKQAELKTPKELDAALNELGPDGDEEE 106
 |||||
 Db 85 DAETNNVEDYIKEGLEEAIAIKQAELKTPKELDAALNELGPDGDEEE 132
 |||||

RESULT 3
 ABU08487
 ID ABU08487 standard; protein; 8991 AA.
 XX
 AC ABU08487;
 XX
 DT 24-JUN-2003 (first entry)
 XX
 DE S. pneumoniae pneumococcal surface protein A (PspA) protein.
 XX
 KW Pneumococcal surface protein C; PspC; pneumococcal surface protein A;
 KW alpha-helical; proline rich; repeat region; pneumococcal infection; PspA;
 KW antibacterial.
 XX
 OS Streptococcus pneumoniae.
 XX
 FT Key Location/Qualifiers
 FT Misc-difference 1..8991
 FT /note= "All Xaa residues within this sequence are
 FT unknown"
 XX
 PN US6500613-B1.
 XX
 PD 31-DEC-2002.
 XX
 PF 16-SEP-1996; 96US-00717471.
 XX
 PR 15-SEP-1995; 95US-00529055.
 XX
 PA (UYAL-) UNIV ALABAMA.
 XX
 PI Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Crain MJ;
 PI Hollingshead S, Tart R, Brooks-Walter A;
 XX
 DR WPI; 2003-361534/34.
 XX
 PT Isolated PspC amino acid sequence used as polymerase chain reaction or
 PT hybridization probe, comprises pneumococcal surface protein having alpha-
 PT helical, proline rich and repeat regions.
 XX
 PS Disclosure; Col 145-188; 186pp; English.
 XX
 CC The present invention relates to the isolation of Streptococcus
 CC pneumoniae pneumococcal surface protein C (PspC), and the polynucleotide
 CC sequence encoding it. PspC is a pneumococcal surface protein A (PspA)-
 CC like protein having alpha-helical, proline rich and repeat regions. The
 CC PspC and PspA proteins may be used in a vaccine to protect against
 CC pneumococcal infections. The polynucleotide sequences encoding PspC and
 CC PspA may be used for the expression of the proteins, and as PCR primers
 CC or hybridisation probes. The present sequence represents S. pneumoniae
 CC PspA protein
 XX
 SQ Sequence 8991 AA;

Query Match 96.0%; Score 502; DB 6; Length 8991;
 Best Local Similarity 98.1%; Pred. No. 9.9e-33;
 Matches 106; Conservative 0; Mismatches 0; Indels 2; Gaps 2;

Qy 1 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQV-ELEEELSKLEDNLK 59
 |||||
 Db 7981 LEKAAELENLLSTLDPEGKTQDELKKAEEAELNKKVEALPNQVSELEEELSKLEDNLK 8040
 |||||

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: November 17, 2005, 19:20:59 ; Search time 75.3256 Seconds
(without alignments)
544.259 Million cell updates/sec

Title: US-10-674-755-22
Perfect score: 523
Sequence: 1 LEKAELENLSTLDPEGK.....TPKELDAALNELGPDGDEE 106

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

- Database :
- 1: A_Geneseq_16Dec04:*
 - 2: Geneseqp1980s:*
 - 3: Geneseqp1990s:*
 - 4: Geneseqp2000s:*
 - 5: Geneseqp2001s:*
 - 6: Geneseqp2002s:*
 - 7: Geneseqp2003as:*
 - 8: Geneseqp2003bs:*
 - 9: Geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	502	96.0	211	7	Abw02621 Bg11703c
2	502	96.0	238	2	Aaw14587 Streptoco
3	502	96.0	8991	6	Abu08487 S. pneumo
4	481	92.0	212	2	Aaw14588 Streptoco
5	481	92.0	212	7	Abw02622 Bg7817c p
6	455	87.0	232	7	Abw02624 Ef568c p
7	455	87.0	275	8	Ado52055 S. pneumo
8	455	87.0	369	8	Adk52496 alpha hel
9	455	87.0	458	2	Aaw14592 Streptoco
10	455	87.0	458	7	Abw02626 Ef5668 pn
11	455	87.0	653	8	Adk52495 PspA mole
12	455	87.0	653	8	Ado52080 S. pneumo
13	444.5	85.0	233	2	Aaw14590 Streptoco
14	413	79.0	185	7	Abw02623 Bg7561c p
15	389.5	74.5	184	2	Aaw14589 Streptoco
16	315	60.2	213	7	Abw02601 Bg8090c p
17	304	58.1	213	2	Aaw14567 Streptoco
18	304	58.1	416	8	Adk52498 alpha hel
19	304	58.1	526	8	Adk52497 PspA mole
20	304	58.1	744	6	Abu00449 S. pneumo
21	304	58.1	744	8	Adm92054 S. pneumon
22	304	58.1	745	3	Aay81652 Streptoco
23	303	57.9	641	2	Aaw61217 Streptoco
24	303	57.9	641	5	Abp54636 S. pneumo
25	303	57.9	641	7	Adc45241 S. pneumo

ALIGNMENTS

RESULT 1
ABW02621
ID ABW02621 standard; protein; 211 AA.
XX
AC ABW02621;
XX
DT 12-FEB-2004 (first entry)
XX
DE Bg11703c pneumococcal surface protein A (PspA) central region.
XX
KW Pneumococcal surface protein A; PspA; diagnosis; antigenic; vaccine;
KW immunological; gene therapy; immunostimulant.
XX
OS Unidentified.
XX
FN US592876-B1.
XX
PD 15-JUL-2003.
XX
PF 15-SEP-1995; 95US-00529055.
XX
PR 20-APR-1993; 93US-00048896.
PR 06-JUN-1995; 95US-00465746.
XX
(UABR-) UAB RES FOUND.
Briles DE, Mcdaniel LS, Swiatlo E, Yother J, Brooks-Walter A;
WPI; 2003-862841/80.
Immunological composition for obtaining expression products used for
detecting the presence of Streptococcus pneumoniae or its strain,
comprises at least two different full length isolated gene encoding
pneumococcal surface protein A.
Example 6; SEQ ID NO 67; 121pp; English.
The present invention relates to an immunological composition comprising
at least 2 different full length isolated genes encoding pneumococcal
surface protein A (pspas) from different groups based on restriction
fragment polymorphism analysis. The invention is useful for obtaining
expression products by recombinant techniques to detect, determine,
isolate or diagnose the presence of Streptococcus pneumoniae or its
strain. The expression product is useful for preparing antigenic,
immunological or vaccine compositions, for eliciting antibodies, an
immunological response (other than or additional to antibodies) or a
protective response (including antibody or other immunological response
by administering compositions to a host). The invention is also useful as

26 300 57.4 197 7 ABW02598
27 296.5 56.7 459 8 ADO15316
28 282.5 54.0 196 2 AAW14564
29 275 52.6 233 7 ABW02606
30 272 52.0 487 8 ADR04321
31 272 52.0 489 8 ADO52088
32 272 52.0 524 8 ADO52082
33 272 52.0 627 8 ADO52129
34 268 51.2 233 2 AAW14572
35 262.5 50.2 290 8 ADO52119
36 262.5 50.2 298 8 ADO52127
37 260.5 49.8 230 8 ADO52086
38 260.5 49.8 230 8 ADR04319
39 257.5 49.2 119 2 AAW46291
40 257.5 49.2 215 2 AAW14563
41 257.5 49.2 215 7 ABW02597
42 194 37.1 315 2 AAY04375
43 194 37.1 619 2 AAR63437
44 194 37.1 619 2 AAR87598
45 194 37.1 619 2 AAR86911
Abw02598 Acl22c pn
Ado15316 S. pneumon
Aaw14564 Streptoco
Abw02606 Bf1019c p
Adr04321 Streptoco
Ado52088 Streptoco
Ado52082 E. coli B
Ado52129 E. coli B
Aaw14572 Streptoco
Ado52119 pYA3637 b
Ado52127 pYA3637 b
Ado52086 S. pneumo
Adr04319 Streptoco
Aaw46291 Pneumococ
Aaw14563 Streptoco
Abw02597 Atcc6303c
Aay04375 Streptoco
Aar63437 Pneumococ
Aar87598 Pneumococ
Aar86911 Pneumococ